

## Bulletin

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## U of T thanks George Connell



## Hail and farewell

President George Connell greets Professor Hugh McLean of the University of Western Ontario and his wife Anne at the tribute dinner in Connell's honour June 19. The black-tie event took place in Constitution Hall at the Metropolitan Toronto Convention Centre. It attracted 600 people from U of T, many other universities, the business world and the

community at large and raised \$150,000 for the George Connell Biochemistry Lectureship. Connell leaves office June 30; Professor Robert Prichard, the president-elect, begins his term July 1. For more on the tribute dinner, and a reception for Connell at Hart House June 18, see pages 8 and 9.

by Karina Dahlin

PRESIDENT George Connell has served the University with skill, grace and infinite good judgement, said Robert McGavin, chair of Governing Council, at its June 21 meeting.

"It is the kind of leadership that Canada is crying out for now and I am extremely grateful that we have had the benefit of it here," McGavin said.

Connell leaves office June 30. His retirement has been marked on several occasions in the context of his role as president, McGavin said. However, his leadership on Council deserves special mention because "it is the key to effectively governing this institution."

"For the past few months in Canada we have seen how easily councils can become bogged down. We have seen it in the councils of the first ministers, of the federal parliament, of Manitoba and of Newfoundland, and we have been so paralyzed by a sense of crisis, by a sense that governing bodies are not operating effectively in our interests and our country's interest, that many commentators have started to refer to Canada as ungovernable."

"The University is a microcosm of our society. In our council, we too must balance competing interests and seek consensus. This council has a unique unicameral structure that no one else has attempted to imitate. But somehow it works and for the past six years George Connell has been instrumental in making it work."

McGavin said there were difficult times when governors, "like the leaders of this country," were faced with attempts at obstruction. "But through it all, the University has gone about its business and gone about it well. That is largely due to the ability George has shown to both serve Council and to guide it — to both follow and lead — to help find consensus and run the University accordingly."

## Quality

In his last report to Council, Connell spoke of the goals he set for himself when he took office in 1984. He said he thinks

See *CONCERNED* : Page 2

## Support grows for kaon factory

by Karina Dahlin

A NATIONAL committee chaired by Dean Robin Armstrong of the Faculty of Arts & Science has recommended that the TRIUMF particle accelerator at the University of British Columbia be upgraded to a "kaon factory."

The report of the Long Range Planning Committee for Subatomic Physics says the upgrade must be accompanied by a tripling of federal government funding for subatomic physics from \$50

million to \$150 million a year. This will sustain current projects and help pay for the \$700 million upgrade.

TRIUMF now produces particles called mesons. In its improved state the machine will produce kaons, particles of much higher energy. Scientists know little about kaons but want to investigate them further in an attempt to understand the origin of mass.

"It is our perception that Canada as a member of the G-7 [the group of seven leading industrial nations] is expected by the other members to take a lead role in science," the Armstrong committee says in its report. "Through the construction and operation of the kaon factory as the key element of its overall program in subatomic physics, Canada will be seen to do so."

The government of British Columbia has promised \$100 million for the kaon project and is actively lobbying for support. This high political profile is enhanced by discussions with half a dozen foreign governments interested in helping to pay for the kaon factory, said Armstrong.

According to an article in the June 14 issue of *UBC Reports*, international backers are committed to paying \$200 million of construction costs, while the federal government is being asked to contribute about \$370 million over five years.

Four years ago, the Natural Sciences & Engineering Research Council (NSERC) said the kaon factory was a sound scientific proposal, but turned it down for lack of funds. If the project were to find

support now, it would be a positive signal to the scientific community, which feels there has been "a lot of talk but no action" in Ottawa, Armstrong said.

In 1984, before he became prime minister, Brian Mulroney promised to double expenditures on research and development. Today the federal government spends about 1.3 percent of the gross domestic product for that purpose, down from 1.4 percent in 1984.

The eight-member Armstrong com-

See *URGES* : Page 2

## Inside

**Nurturing:** Whether it's her garden or her alma mater, Cynthia Smith tends to business.  
*Profile* **PAGE 6**

**Prediction:** A computer program helps law and science.  
**PAGE 7**

**Discovery:** John Roder identifies a molecule. **PAGE 10**

**Global village:** Japan, the US and Europe will be the economic giants of the future.  
*Books* **PAGE 11**

**Art smart:** For some peace and quiet this summer, send the kids to Erindale's art camp.  
*Events* **PAGE 13**

## Meadows to head UTP

GEORGE MEADOWS has been appointed managing director of University of Toronto Press for a one-year term, renewable for an additional two years by mutual agreement. He began work June 22.

Governing Council confirmed the appointment at its June 21 meeting. Meadows has been a member of the U of T Press Management Board since 1986 and chaired its finance committee this year.

He is a former president and chief executive officer of Selkirk Communications Ltd., a Canadian public company with radio and television stations, two cable companies and interests in television production and advertising. He was senior vice-president of Southam Inc. responsible for its printing, bookstore and business communications operations.

"His volunteer involvement with the Press, combined with his printing and management experience, will make him an invaluable addition to the operation," said Alec Pathy, vice-president (human resources) and chair of the management board.

Part of the new director's mandate will be to develop long-range plans to strengthen the University's scholarly publishing program and to enhance its national and international reputation.

U of T Press has been without a permanent director since Harald Bohne retired last June. Harry Van Ierssel, assistant director (finance), has been interim director since that time.

With about 1,000 titles in print and some 100 new titles annually, U of T Press is Canada's largest publisher of scholarly books and journals. It is projecting sales of \$44.7 million in 1990-91.





## Graduating bliss

New graduates gathered on the front campus for congratulatory hugs and photographs at this year's convocation ceremonies.

## Urges federal response

Continued from Page 1

mittee was established by the National Research Council (NRC) and NSERC last summer at the request of the federal minister for science, William Winegard. The committee was asked to comment on four different funding levels for subatomic physics: annual expenditures of \$40 million, \$50 million, \$75 million and \$150 million.

The report has not yet been discussed by NRC and NSERC, but the presidents of the two councils forwarded it to Winegard last month. The Armstrong committee has urged the minister to respond to its recommendations before the end of the year.

A positive reaction would signal a new government attitude to basic science. However, given recent statements by NRC president Pierre Perron, it seems unlikely that Winegard will approve the kaon proposal.

On Feb. 7 Perron told U of T's Research Board that the council expects to see its budget reduced by 20 to 25 percent in the next five years.

He said high energy physics will be affected in a negative way. Traditionally TRIUMF has received its grants through NRC and the kaon factory is a high energy physics project.

However, Armstrong said NRC could continue to reduce its funding of high energy physics in its own laboratories and at the same time act as a conduit for money for other projects, including the kaon factory.

## Fund created

THE FACULTY of Arts & Science will establish a \$2,000 scholarship in honour of Dean Robin Armstrong, who leaves U of T Sept. 30 to become president of the University of New Brunswick. The scholarship acknowledges Armstrong's contribution to the faculty and the University over the past 27 years and his commitment to improving the quality of education for undergraduate students. It will be awarded annually to a promising undergraduate student entering a fourth-year arts and science program and will rotate among the sciences, humanities and social sciences. A total of \$20,000 will be raised. Fund raising is being organized by the committee coordinating a farewell dinner and tribute for him on Sept. 25 at the president's residence.

One of the greatest challenges for proponents is to convey to politicians the significance of the proposal. "Canada has never understood the importance of basic research," Armstrong said. "Traditionally we have let others do the research and we have imported the technology."

The return on investment in high technology is far greater than in the automobile industry, for example, where manufacturing methods are easily copied and competition is fierce, Armstrong said. But in a high technology economy it takes longer to see the returns because of the lead time needed for research and development.

Canada has begun to feel the pressure to pay for its participation in large accelerators outside the country, particularly the ones operated by CERN (*Conseil européen pour la recherche nucléaire*), headquartered in Geneva, Switzerland.

Five years ago, there were perhaps five Canadians at CERN; today, there are about 80, said Armstrong. "CERN council has made it clear to the minister of science that the free lunch is over."

## Concerned with budget

Continued from Page 1

there are still some deficiencies in students' access to "a first-class educational experience" but was pleased with the quality of new faculty members.

He is also concerned about professors' opportunities to carry out research. His single greatest concern is the University's anticipated operating deficit.

Connell said he wants U of T to be an exemplary employer and is pleased that during his term, six agreements were reached with the faculty association and only one was resolved in arbitration — "a record I take some satisfaction in." He said he is "very hopeful" that the question of the union certification of administrative staff will soon be resolved.

The University's ties with its alumni have been strengthened in recent years, Connell noted. "I am very impressed with the progress in this area."

When he took office, Connell did not envisage the time he would spend with U of T's institutional neighbours, including the Ontario Institute for Studies in Education, the Royal Conservatory of Music and the Toronto School of Theology. In each case the relationships were

# Behind the scenes at the Meech marathon

by Jane Stirling

THE Meech Lake constitutional talks would have foundered in Ottawa two weeks ago had it not been for Ontario's senate concessions, says Professor Rob Prichard.

Prichard, a former dean of the Faculty of Law and president-elect of the University, was in the capital with a number of others from U of T to advise Premier David Peterson. The seven-day marathon was "more physically, emotionally and intellectually demanding" than any negotiations he has ever been involved in, Prichard said. "It was very hard to establish unanimous agreement. Everyone had to give to make the Canadian solution possible."

Professor David Cameron, who has been on leave from the Department of Political Science since 1987, attended the talks as Ontario's representative to the government of Quebec and constitutional adviser to Peterson.

Fitting the provincial pieces of the puzzle together was the hardest task, he said. "Compromise is one of the most difficult things to achieve when you really care about something."

All the premiers tried to put their own concerns about Meech Lake into the context of the country as a whole, Cameron said. "We all felt we had to advance the interests of the nation."

Peterson's offer to give up a quarter of Ontario's 24 seats in the Senate for redistribution to other provinces if reform of the upper chamber fails by 1995 was a critical point in the talks. "There is widespread agreement that in the absence of Peterson's proposal, the talks would have foundered," Prichard said. "It was critical to the success of the conference."

Professor Katherine Swinton of the Faculty of Law, another Peterson adviser, said there were discussions by the Ontario team about the timing of the senate proposal. "It was clear it would be brought out only when it was key to the negotiations," she said. "Something like this isn't done lightly but it became important to bring this point along."

The discussions, she said, were like a roller coaster ride. "There was a lot of emotional involvement and many premiers had different views of the constitution and the constitutional process. They argued hard and some felt very bruised when they didn't get their way — they may have felt pummelled and some much more battered than others. Quebec, for instance, felt it couldn't move [on the issues]."

In the wake of the Ottawa talks, many premiers have criticized the behind-closed-doors approach to the negotiations. However, Prichard said there may have been no other alternative.

"There is unanimous agreement that the secret process was regrettable and should have been more open to the public," he said. "But I'm not sure whether any other process would have been possible."

But there should have been more opportunities for public input between the time the accord was signed in June 1987 and the time the proposals were drafted into legal text, he said.

Cameron said Canada is still learning to conduct its constitutional amending process. "We're learning as we go. This is the most significant exercise we've gone through in constitutional reform."

While all negotiations could not be conducted in front of the television cameras, Cameron said there could have been more public input at an earlier stage. "The government has to get used to the fact that the public is more interested in constitutional matters since the Canadian charter was signed in 1982. It's a much more popular document than the BNA Act was."

Swinton said a certain amount of negotiating had to be done in private where premiers could talk off-the-record without worrying about political repercussions back in their own provinces.

"It was a strange way of running the negotiations," she said. "I could see why there were misunderstandings. Not all the premiers were in the room at the same time; some might be in another room talking to their advisers when deals were being put together."

It was a "fish-bowl" environment, Cameron said. "The rumour mills would circulate like mad and this information would get fed back to the first ministers."

## Alway to SMC

PAUL McCANN, assistant warden of Hart House, will be in charge of house affairs until a new warden is selected. Richard Alway, the current warden, leaves the position June 30 to take up the presidency of St. Michael's College. David Neelands, assistant vice-president (student affairs) said last week there is no deadline for the selection of a warden.

## Summer Bulletins

THE SUMMER issues of the *Bulletin* will be published July 23 and Aug. 20. The deadline for receipt of events and booking of display ads for the next issue is July 9. Editorial material and classified ads should be in the *Bulletin* offices at 45 Willcocks St. by July 13.

UNIVERSITY OF TORONTO

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# FASE adopts discipline code

by Gay Abbate

THE University Affairs Board has approved a Code of Behaviour on Non-academic Matters for the Faculty of Applied Science & Engineering.

The code, passed May 29, makes it an offence to disrupt University activities such as teaching, research, studying, administration, student events and public service. However, it does not prohibit peaceful demonstrations, legal picketing or free speech — rights guaranteed by the University's Code of Behaviour on Academic Matters.

It cites other punishable offences: unauthorized entry, theft or destruction of property, physical and verbal abuse and harassment or discrimination based on race, creed, colour, national origin, gender or sexual orientation. The University's sexual harassment policy supersedes the code in matters of sexual harassment.

The code provides for a number of possible sanctions against students: a reprimand, restitution for damage, probation for a period not exceeding one year, a fine of up to \$100, denial of access to faculty premises or services for a period not exceeding one year or a

combination of the above. However, punishment cannot directly affect academic standing.

Dean Gary Heinke of engineering said in an interview that the code is a step in the right direction. "However, only time will tell how effective it will be," he said.

The code was drafted by the faculty's committee on community affairs made up of students and faculty and chaired by Professor Gabriele D'Eleuterio of the Institute for Aerospace Studies. It was passed by the faculty council May 30. Students had considerable input into the drafting of the document, Heinke said.

Engineering's code is modelled on the one adopted by Scarborough College in 1987. Innis and University Colleges, as well as St. Michael's, Trinity and Victoria all have non-academic discipline codes. Erindale College and the School of Architecture & Landscape Architecture are currently drafting codes.

All divisions were asked last year by the provost's office if they were interested in preparing non-academic codes. Divisions can establish their own codes under the General Principles for Divisional Discipline Powers passed by Governing Council in 1986.

## Implementation planned for smoking policy

THE UNIVERSITY'S revised policy prohibiting smoking in all buildings with the exception of special designated areas could be implemented by the fall, said David Neelands, assistant vice-president (student affairs).

A committee to oversee the implementation of the smoking policy is being put together and should begin its work in July, he said. It will have about 10 members representing the administration, faculty, staff, students and Scarborough and Erindale Colleges. Members are currently being nominated by these constituencies.

Neelands said he is aiming for a Sept. 1 starting date. However, Elizabeth Paterson, director of the International Student Centre and chair of the working group which reviewed the smoking policy, said in an interview she is not sure the fall target can be met.

She said there are some practical things to consider which will take time, such as the kind of signs to be used, the time required to order them, the fate of existing smoking areas once the policy is implemented, how it will be enforced and an educational program to inform the University community of the new policy. She said the policy may have to be implemented in

stages.

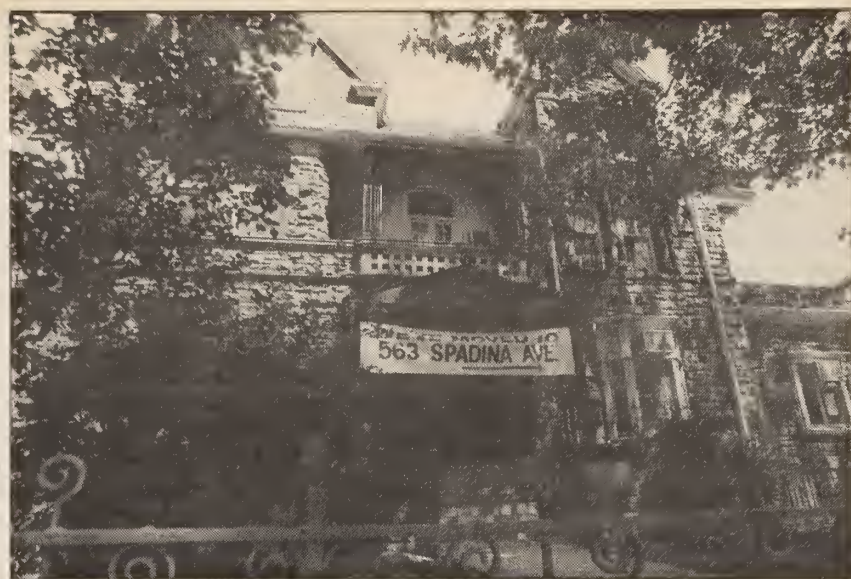
The revised policy, passed by the University Affairs Board May 1, makes all buildings non-smoking with the exception of designated areas where desired. There is no need for any building to have a smoking area, Neelands said.

The purpose of the revised policy is to protect non-smokers from the effects of second-hand smoke. No one should be forced to inhale second-hand smoke as a condition of attending or working at the University, he said.

The policy sets the criteria for smoking areas. They must be enclosed to ensure that smoke does not intrude on non-smoking areas, directly vented to the outside, accessible to faculty, staff and students and identified by signs as smoking areas. Smoking is prohibited in all eating areas.

The University Affairs Board excluded residences from the policy pending consultation with residence councils in the fall. The board will then consider the proposals for amendments to the policy that arise from the discussions.

Pubs were not excluded despite concern from some board members that the policy would pose a hardship for those unable to meet the ventilation requirements.



## Nobody home

Woodsworth College moved to its temporary home in the North Borden Building on Spadina Cres. June 4 and will remain there for 18 months while work is carried out at 119 St. George St. The cost of the renovation and expansion is estimated at \$9.85 million (taking inflation into account) including a contingency of \$750,000. Capital funds have reached \$12.5 million. Of this amount, Woodsworth students will contribute about \$6 million through two levies. When the college reopens on St. George in 1992, it will have a new entrance and a tower. The renovated Drill Hall will include a new wing. Construction is scheduled to begin next month.

David Neelands, assistant vice-president (student affairs), said he would prefer to have a University-wide code. Divisional codes do not ensure that everyone is treated equally for the same offence, he said. "Three students from three different colleges can be charged under three different codes and heard by three different tribunals. It's unfair and inconsistent."

There is also the problem of jurisdiction because divisions can only regulate behaviour in their own buildings, he said. A general code would solve the problem

of who has jurisdiction when a student in one division disrupts a class held in another division's building or in a University facility — Convocation Hall, for example.

Neelands said he will establish a working group to determine over the next 12 months whether a general code is feasible. He said divisions have indicated an interest in such a code. The University approved a general non-academic code in 1974 but it was never implemented because of strong student opposition.

## Air tests postponed; asbestos group forms

AIR TESTING for asbestos in Sidney Smith Hall, scheduled to begin this month, has been postponed.

The Joint Health & Safety Committee for Sidney Smith requested the delay, said Chris McNeill of the Office of Environmental Health & Safety. No new testing dates have been set.

Bob Young of the Department of Psychology, chair of the health and safety committee, said several student groups, as well as the faculty and staff associations, asked for the postponement at the committee's June 11 meeting because they felt the tests would serve no useful purpose.

Robert Cook, liaison officer for the Association of Part-time Undergraduate Students (APUS) — one of the groups opposed to the tests being carried out now — said they should be done after asbestos has been removed to ensure that the cleanup is complete. Current tests would only give the building's occupants a false sense of security, he said.

McNeill said he is not sure everyone who works in the building agrees. Testing was planned in the first place to reassure occupants that there are no significant levels of airborne asbestos.

Meanwhile, student groups and the faculty and staff associations have formed the U of T Asbestos Committee which held its first meeting June 15. It sent a letter to President George Connell asking the University to hire an independent consultant to study the asbestos situation in Sidney Smith. No decision has been made on the request, McNeill said.

A new study would cost about \$5,000 and would be the third such undertaking in little more than a year. A study last June by Pinchin & Associates Ltd. concluded that the asbestos is in good condition overall.

Last month, APUS and the Arts & Science Students' Union hired their own consultant, Stan Gray of the Ontario Workers Health Centre. He said the asbestos is in poor condition and poses a serious health risk.

Cook said APUS wants another study because Gray's report was incomplete. The University refused to give Gray access to all parts of the building, Cook said.

Controlling access to the sprayed asbestos above the ceiling tiles is now the major concern, McNeill said. People without authorization from physical plant have been removing the tiles to run computer cables from one area to another, loosening asbestos.

The asbestos committee has also asked for the immediate removal of asbestos in high-priority areas to be determined by a new consultant and it has asked for student representation on the building's health and safety committee.

The University has not intentionally excluded students but Ontario's Occupational Health & Safety Act, which governs such committees, mentions only management and non-management members, McNeill said. U of T has encouraged student participation on health and safety committees in high-risk areas such as engineering and science departments where students deal with potentially hazardous chemicals.

Concerns were raised by occupants of Sidney Smith about possible asbestos in the air following the removal of the substance above the lobby's ceiling in April. It had been sprayed on steel structural beams as a fire retardant when the building was constructed about 30 years ago. While sprayed asbestos is not considered dangerous if enclosed, it does pose a hazard if fibres become loose and get into the air.



An improved smoking policy will be implemented this fall.



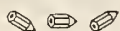


**George Connell** has said goodbye on many occasions recently but none as sweet as the Farewell Bash with faculty, staff and students June 18 at Hart House. Strawberries in chocolate, strawberries in mousse, strawberries in custard, strawberries in punch, strawberries'n cream and strawberries *au naturel* were used to create a magnificent, colourful, tasty display. The berry extravaganza was conceived by **Alex Waugh**, who enjoyed it as much as everyone else at the calorie-laden table.

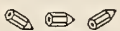


Acting registrar **Karel Swift** was one of the speakers at a reception in honour of departing president George Connell, who is, among many other things, tall. Swift (only five feet herself) began her speech with a poem:

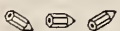
"King George is not a small man;  
In fact, he is quite tall.  
I've never actually seen his face,  
But some memories I recall."



As we reported last issue: Father **Jim McConica** is on his way to the University of Oxford to become academic dean of All Souls College. Asked if he plans any land transactions on All Souls' behalf, he reports, with relief, that his new college is, well, rich. "It's like going to heaven," he says.



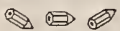
The second annual slow-pitch baseball game between the staffs of Erindale and Scarborough Colleges took place at Scarborough June 13 and again the home team won, this year 27-22. Erindale prevailed last year, so the colleges are even heading into next year's game. The reason for Scarborough's five-point margin in 1990, according to **Marion Zimmer**, director of public relations — more team members. The winners received an original trophy designed by **Jaan Laaniste**, associate director of physical education at Scarborough: a wooden base, a large recycled metal juice tin and two spoons welded on the sides for handles, the whole adorned with phys ed decals. About 50 people participated altogether. **Paul Annis**, Scarborough's superintendent of utilities, got the game's only home run, for which he won a golf shirt. The prizes, donated by Beaver Foods Ltd., included baseball hats, mugs, key chains and pins. Scarborough principal **Paul Thompson** won a prize for the "best knees" and director of administration **Patrick Phillips** won for the best catch. The day wasn't all fun and games, however. The two groups met beforehand to discuss matters of mutual concern.



Professors Victor Ignatyev, Paul Tychenko and Boris Yudin of the Soviet Academic of Science's Institute of Philosophy, paid a visit to Scarborough College last week at the invitation of Principal **Paul Thompson**. They were returning a visit Thompson paid to the USSR in December.

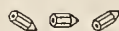


We received a letter recently from a friend in the Department of Linguistics. He read our front-page notice of the date of the new president's installation and concluded that faculty and students will not be invited. Nothing could be further... Classes will be cancelled and all staff and students are invited. If we left the wrong impression, our apologies.

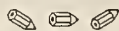


Late last month, CBC announced the winners of its eighth annual choir competition. The University Women's Chorus, conducted by Ann Cooper Gay, won second prize. Judging took place

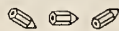
in Montreal by a jury of distinguished musicians. The prize money totalled \$23,500 this year. Second prize brought \$1,000.



Baylor University in Waco, Texas, has announced two teaching awards for 1991 — a chair and a lectureship — both named for Robert Foster Cherry, a Baylor alumnus. The recipient of the chair will receive \$100,000 and will teach at Baylor for nine months. The other award carries \$25,000; the recipient will deliver lectures at Baylor. All nominations and supporting material must be received by the awards committee by *October 15, 1990*. For more information write to the R.F. Cherry Awards Committee, Baylor University, B.U. Box 7412, Waco, Texas 76798-7412 or telephone (817) 755-7412.



*UBC Reports* published an interesting item in its June 14 issue. Women 40 and over are 128 percent more likely to have left-handed children than women giving birth between the ages of 17 and 24, according to research by UBC professor Stanley Coren, a psychologist. His findings were reported recently in the *New England Journal of Medicine*. "As mothers grow older they are much more likely to have a stressful pregnancy and difficult birth. Left-handers seem to be associated with stressful births," Coren says.



The latest issue of the *David Dunlap Doings*, the University's liveliest newsletter, appeared earlier this month and it contains, as usual, much of interest. **Bob Garrison**, we learn, has started his sabbatical year with duties in Italy, where he is a faculty member at the Vatican Observatory School in Astronomy & Astrophysics at Castel Condolfo, the papal summer palace. The title of his course: "Probing the personalities of stars; the classification of stellar spectra." In his contribution to the latest *DD Doings*, Bob reports on deliberations regarding the stereo system on "the mountain" — the Las Campanas Observatory in Chile. "Compact disks seem to be on the increase," he writes, "and seem to be the medium of the foreseeable future, at least if you consider the trends in all the record stores ... and most North American Yuppie (some say Muppie = Middle-aged University Professor) homes."



**David Cameron** of the Department of Political Science was in Ottawa during the Meech Lake negotiations as an adviser to Premier David Peterson. While Cameron and other members of the Ontario delegation were out for a stroll through the Byward Market, a police officer, seeing their "dog tags" — conference ID — asked how things were going. "We said it was hard slogging," Cameron reports. Without missing a beat, the officer replied, "Well then, why don't you send us in? We're good at dealing with domestic disputes."



The Ontario delegation at the Meech Lake constitutional conference travelled from one corner of Canada to the other — all in the space of a week. The provincial advisers spent their days and nights in the confines of Ottawa's Westin Hotel, which has meeting rooms named after each province. But every day they would find themselves in a different location. "We'd start off in Saskatchewan, the next day we'd be in New Brunswick and then we'd be in Manitoba," says **Peter Russell**, one of the premier's advisers. "We finally made it to the prime minister's room. I guess you could call it a movable feast."

## Ostry named UW chancellor

PROFESSOR Sylvia Ostry, chair of the University's Centre for International Studies, has been elected chancellor of the University of Waterloo to succeed retired Toronto banker J. Page R. Wadsworth. Her three-year term begins May 1, 1991. A prominent Canadian economist, Ostry is chair of the National Council of the Canadian Institute of International Affairs and western co-chair of the Blue Ribbon Commission for Hungary's Economic Recovery. Born in Winnipeg, she received her BA and MA from McGill University and her PhD in economics from Cambridge and McGill in 1954. In 1978 she was named an officer of the Order of Canada and in 1987 received the Government of Canada Outstanding Achievement Award. She holds 17 honorary doctorates. Ostry served as chief statistician of Canada from 1972 to 1975, chair of the Economic Council of Canada in 1978-79, deputy minister of international trade in 1984-85 and ambassador for multilateral trade negotiations and the prime minister's personal representative for the Economic Summit from 1985 to 1988.

## Gairdners given

THREE U of T scientists are among the winners of the 1990 Gairdner Foundation International Awards, a prize accompanied by a \$30,000 grant. Professors Lap-Chee Tsui of the Departments of Medical Genetics and Medical Biophysics and Jack Riordan of the Departments of Biochemistry and Clinical Biochemistry will receive \$30,000 each for findings that may lead to ways of treating cystic fibrosis. Professor Victor Ling of the Department of Medical Biophysics will receive the award for his discovery of the process by which some cancer cells resist the action of therapeutic drugs. The Gairdner awards recognize outstanding contributions in the field of medical science. Since 1957 the Gairdner Foundation has honoured 212 scientists, 36 of whom have subsequently won Nobel prizes. The awards will be presented in Toronto Nov. 2 by Professor Robert Prichard, who becomes president of the University July 1. The winners will give lectures at U of T on Nov. 1 and 2.

## Service noted

PROFESSOR Lap-Chee Tsui of the Departments of Medical Genetics and Medical Biophysics is one of three recipients of the annual Gardiner Awards given for community service by Metropolitan Toronto Council, the Toronto Junior Board of Trade and the Toronto Jaycees. A member of the cystic fibrosis (CF) research institute at the Hospital for Sick Children, Tsui is one of three U of T researchers who in 1989 isolated the gene that causes CF, the most common life-threatening genetic disease among Caucasians. He received a BSc in 1972 and an MPhil in 1974 from the Chinese University of Hong Kong and a PhD from the University of Pittsburgh in 1979. In March the City of Toronto awarded him its Civic Award of Merit.

## Jones honoured

PROFESSOR Philip Jones of the Departments of Civil Engineering and Microbiology and the Institute for Environmental Studies has been awarded the Albert E. Berry Medal by the Canadian Society for Civil Engineering. Jones joined the U of T teaching staff in 1964; he retires at the end of this month. He graduated from the University in 1958 with an honours BSc and did his graduate work at Northwestern University in Illinois receiving his MS in 1963 and his PhD in 1965. He founded the Institute for Environmental Studies — then called the

Centre for Environmental Sciences & Engineering — in 1970 and served as chair until 1974. The medal is granted to a civil engineer who has made a significant contribution to the field of environmental engineering in Canada. It was established in 1987 to honour Albert E. Berry, an international authority on water pollution, who was a special lecturer in civil engineering at U of T as well as an alumnus.

## Award for Fullan

DEAN Michael Fullan of the Faculty of Education has received the first Award of Excellence from the Canadian Association of Teacher Educators (CATE). Noted for his book *The Meaning of Educational Change*, Fullan is recognized as an innovator and leader in teacher education. The CATE committee that selected Fullan as the recipient of the award noted that he is seen as an example of the researcher-scholar-practitioner of the highest calibre with an ability to communicate well with various groups: government, university, colleagues and the public.

## Funds received

THE University has received \$421,000 from the Ministry of Health to establish a division of radiation oncology. MPP Ron Kanter (Liberal — St. Andrew-St. Patrick) announced the grant June 7 on behalf of health minister Elinor Caplan. The division, which will open July 1, will report to Dr. Gerry Goldenberg, assistant dean of oncology and director of the interdepartmental division of oncology. He will coordinate radiation, surgical and medical-paediatric oncology. Goldenberg, currently at the University of Manitoba, will assume his position at U of T Aug. 1. The search for a radiation oncology division head will begin soon. Once the required approvals are obtained, the division of radiation oncology will be established as a separate department. Its creation will allow medical students to become more familiar with radiation oncology earlier in their education and increase the chance that they may specialize in it. Radiation oncology involves the treatment of cancerous tumours.

## Book recognized

PROFESSOR Richard Rogers of the Department of Psychiatry, senior psychologist and coordinator of research of the Clarke Institute of Psychiatry's Metro Toronto forensic service, has received the Manfred S. Guttmacher Award. Rogers is the first Canadian to receive the prize, given to him in recognition of his book *Clinical Assessment of Malingering and Deception*. The award is sponsored by the American Psychiatric Association and the American Academy of Psychiatry & Law for an outstanding contribution to forensic psychiatry.

## Askew acclaimed

DAVID ASKEW, a counsellor at the Career Centre, has been acclaimed president of the U of T Staff Association (UTSA) in 1990-91 for the seventh year in a row. There is no change in the association's executive council this year; all members were acclaimed in early June. They are: Cathy Charney of student awards, chair of UTSA's board of representatives; Judith Eichmanis of the Institute for Environmental Studies, vice-president (policy); Sarah Henderson of the Institute for the History & Philosophy of Science & Technology, vice-president (grievances); Michael Jackel of the U of T Bookstore, first vice-president; John Malcolm of technical services at Erindale, vice-president (salary and benefits); and Karin Smith of mathematics, secretary-treasurer. Eight positions are open on the association's board of representatives. Nominations open today and close July 6 at 5 p.m.



# Ontario government awards medical grants

THREE University researchers have been awarded Ministry of Health grants totalling almost \$170,000 as part of the health care systems research program.

Health minister Elinor Caplan announced the grants June 4. Nine projects were selected from among 84 submissions.

Dr. Allison McGeer, clinical fellow in infectious diseases and fellow in epidemiology at Mount Sinai Hospital, received a grant of \$30,982 to find out why some elderly people do not appear to have a fever when they acquire an infection, a phenomenon that can make diagnosis difficult.

McGeer and her co-investigators from Mount Sinai and Toronto General Hospital will conduct a study over a period of six months of the temperatures of 800 residents in Metro area nursing homes and homes for the aged. The study will begin at the end of June.

Professor Ted Myers of the Department of Health Administration received \$49,024 from the province as well as funds from Health & Welfare Canada to conduct a survey of 800 randomly selected residents from 10 First Nations communities across Ontario.

Myers, a national health scholar for AIDS research, will be investigating knowledge, attitudes and behaviour related to the human immunodeficiency virus (HIV) and will develop culturally specific educational materials. A steering

committee of 12 people including community representatives and health directors from provincial and territorial organizations will work with Myers' University research team.

The team includes Dr. Randall Coates and research associate Liviana Calzavara of preventive medicine and biostatistics, Professor Rhonda Cockerill of health administration and Professor Victor Marshall of behavioural science. The study, which will take 20 months, will start in July.

Dr. Giuseppe Pagliarello of the Department of Surgery and a consultant in general surgery, trauma and critical care at Sunnybrook Health Science Centre has received \$89,690 to compare the accuracy of a CAT scan and a procedure called peritoneal lavage (checking for the presence of blood using a tube inserted into the abdomen through a small incision) in detecting abdominal wounds in patients who have sustained multiple injuries. Pagliarello and his colleague Dr. Paul Hamilton, staff radiologist, hope to include 150 trauma patients in the 18-month study that begins next month.

## Six share grant for microfilming

UOFT is one of six Canadian institutions to jointly receive a \$1.2 million grant (\$875,000 US) from the Andrew W. Mellon Foundation to preserve decaying library books through microfilm.

The other five participants in the three-year project are the University of British Columbia, the University of Alberta, McGill University, Laval University and the National Library of Canada.

The grant will be used to microfilm books and to set up a Canadian data base of filmed books, said Karen Turko, head of the preservation department at the U of T Library. Turko will chair a steering committee of the six institutions to establish standards for microfilming and to check on the progress of the work.

The universities are responsible for filming the books. The National Library will set up the data base and link it to an international one. By checking with these two data bases to discover what has already been filmed, Canadian libraries can avoid duplication. This saves U of T the expense of having to film all its endangered books, Turko said.

U of T is currently the only one of the five universities to microfilm books. However, the process is expensive — about \$100 per book — and it can only afford to do four or five books a day, Turko said.

She said she hopes the Mellon grant will act as a catalyst for private Canadian donations. Private money for book preservation has been scarce in this country because the need is not viewed as a high priority, she said.

Of the seven million books in U of T's collection, about two million are so brittle or eaten away they cannot be rebound or mended. The University sweeps up the equivalent of one book per day, Turko said. The only way to save their contents once they become brittle is through microfilming.

Those requiring microfilming were printed within the last 140 years. Some are as recent as the 1970s. Since 1850, books have been printed on paper made from cheap wood pulp treated with acidic chemicals. Over time, rapid temperature changes, humidity and bright lights cause the acids to weaken and destroy the paper. Books printed prior to 1850 are in better condition because the paper was made from flax or cotton rags, which are much stronger.

The book publishing industry started to use acid-free paper last year and this should eliminate the rapid deterioration of new books, Turko said. If stored under controlled atmospheric conditions they should last for centuries.



HOMA FANIAN

## President to president

President George Connell congratulates Noor Hassanali, president of the Republic of Trinidad & Tobago, on the receipt of an honorary doctor of laws degree at Victoria College convocation ceremonies June 12 while Chancellor John Aird and President Eva Kushner of Victoria look on.

## Silver wins teaching award



PROFESSOR Julie Silver of biology at Scarborough College is the winner of the 1990 teaching award co-sponsored by the college and its alumni association.

Undergraduate and graduate students who nominated Silver cited her ability to explain complex concepts and her dedication to students which goes beyond her own classroom and laboratory. They also praised the supplementary material she prepares for them to take away from lectures.

Many of her graduate students said she inspired them to pursue careers in research. She regularly receives an "exceptional" rating on her teaching evaluation forms.

Silver has taught at the Scarborough campus since 1975 and has a cross appointment to the Department of Microbiology in the Faculty of Medicine. She graduated from the City University of New York with a BSc in 1963 and a PhD in 1969.

She said she works hard to ensure students understand her classes. If they do not, she will restate her point differently until they do. She enjoys sharing with them her own appreciation for the beauty of systems. "There's a logic and economy to the way cells function. These systems have an aesthetic beauty one can appreciate."

The rest of U of T's collection needs to be deacidified before it becomes brittle if it is to be saved or at least given a longer life, Turko said. However, there is currently no plant in the Metropolitan Toronto area which does this work. A special committee has been set up to look

at raising funds for a deacidification plant. It is composed of representatives of the University and the other large library systems in the Metro area which are also facing the problem of disintegrating books. Carole Moore, U of T's chief librarian, chairs the committee.

## Service eases library loans

A RECENT agreement between Utlas International and Online Computer Library Centre, Inc. (OCLC), an American-based non-profit computer library service and research organization, will make it easier for U of T faculty and graduate students to locate books in the United States and borrow them through inter-library loan.

As an Utlas subscriber, the University will benefit by access to OCLC's online reference service, EPIC, a bibliographical catalogue of some 21 million items, said Peter Clinton, associate librarian (reader services) and acting head of library systems. Nearly two million new records are added to OCLC's bibliography each year by more than 10,000 member libraries in 39 countries.

EPIC allows users to quickly determine

which American libraries have a particular book. The user can select up to five potential lenders per request. The system automatically forwards the requisition to each library in turn until it is filled, thereby speeding up the inter-library loan procedure.

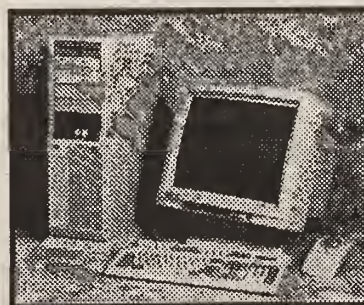
This new service could be available at U of T as early as this fall, Clinton said. However, it will be restricted to faculty and graduate students.

Utlas International Canada, a division of International Thomson Ltd., has been granted the Canadian marketing and distribution rights to OCLC products and services. This will enable Utlas to offer its 2,500 member libraries a more complete range of services, Clinton said. "It opens up some avenues not previously available to us. It's a very positive move."

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## Profile



by Karina Dahlin

## Time bandit



HOMA FANIAN

ON SUNDAYS Cynthia McKay Smith gardens. That seems fitting for the new president of the U of T Alumni Association. As a teenager she went to Havergal College, a prestigious girls' school, and she prefers to say she is in her "mid-forties" rather than reveal the raw fact. But there the conventional image of a University volunteer ends.

Smith spends anywhere from eight to 20 hours a day as director of the Legislative Research Service at the Ontario Legislative Library at Queen's Park. It's a job with many responsibilities and much pressure. All members of the house can ask Smith's office to analyze any topic of interest to them in their role as legislators. A pointed query or a stinging reply by MPPs during question period is sometimes based on a solid night's work (expressed in non-partisan language) by Smith and members of her staff of 22.

I think it would be natural if Smith spent the rest of her waking hours in front of the TV, or staring out the window, simply to regenerate energy. But this woman does not know how to waste time. "If anything suffers it's my friendships. I call people up for our semi-annual dinner or lunch, but luckily they are just as busy and understand." She is a compulsive reader and devours a handful of books every week. She also writes — fiction under a pseudonym and Canadian history in collaboration with her husband, Professor Jack McLeod of the Department of Political Science. The two married four years ago; for the previous decade she was a single parent of two children, both of whom are at university today.

Born in Toronto, the daughter of a district court judge, Smith's affiliation with the University began in 1960 when she enrolled at Trinity College. In 1966 she received her MA in Canadian history, two years later she completed a bachelor of library science and in 1979 she topped it off with an MLS. She worked as manager of information services for Inco Ltd. and was director of placement at U of T's Faculty of Library & Information Science from 1982 to 1984. She has held her current job for more than five years.

To keep her outlook well-rounded she always tries to find time for vol-

unteer work. Since she plans only to *research* a book this year — not write it — she was able to take on something as demanding as the position of UTAA president. Nevertheless, she was "a reluctant bride" because she had only served with UTAA for three years and felt she lacked the necessary background. "I thought a lot about it. I had endless questions about the time and commitment required. But I believe strongly in the University and that it needs committed, experienced people." She was elected for a one-year term at UTAA's annual meeting May 22.

In the past, some have viewed the alumni association as a peripheral volunteer organization — a fine activity for someone proficient in arranging tea parties. Today fund raising is the overriding concern and Smith's extensive management experience will be of considerable value to the University as it reaches out and tries to make graduates understand that their support is vital. "Education is at least as important as social services," Smith says. Most people do not donate as much money to the former as to the latter.

She goes about her work in a methodical way. For the past few weeks she has regularly made the seven-minute trek from her office in the Whitney Block at Wellesley St. and Queen's Park Cres. to the Department of Alumni Affairs at 21 King's College Circle where she spends her lunch hours perusing old files to get a better understanding of UTAA's history. Much of her alumni work is done on the phone at home. The first point on her agenda is to write a letter to president-elect Robert Prichard asking him to suggest two or three projects UTAA might support in addition to the work it is doing already. Generally she wants to continue the changes that have been made over the last couple of years.

She is excited about the calibre of people working with her on the UTAA executive and will probably find it easy to attract more hard-working volunteers to the association. The question is, will she still find time to keep her garden free of weeds or will she completely destroy the stereotypical picture of alumni volunteers as a genteel, tranquil people?



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# Predicting risk: computers and alcohol

Program gives lawyers and researchers a new tool

by Jane Stirling

A COMPUTER program that can predict blood-alcohol levels based on a series of questions and answers will help lawyers and scientists in their professions, says Professor Gwynne Giles of the Department of Pharmacology and the Addiction Research Foundation.

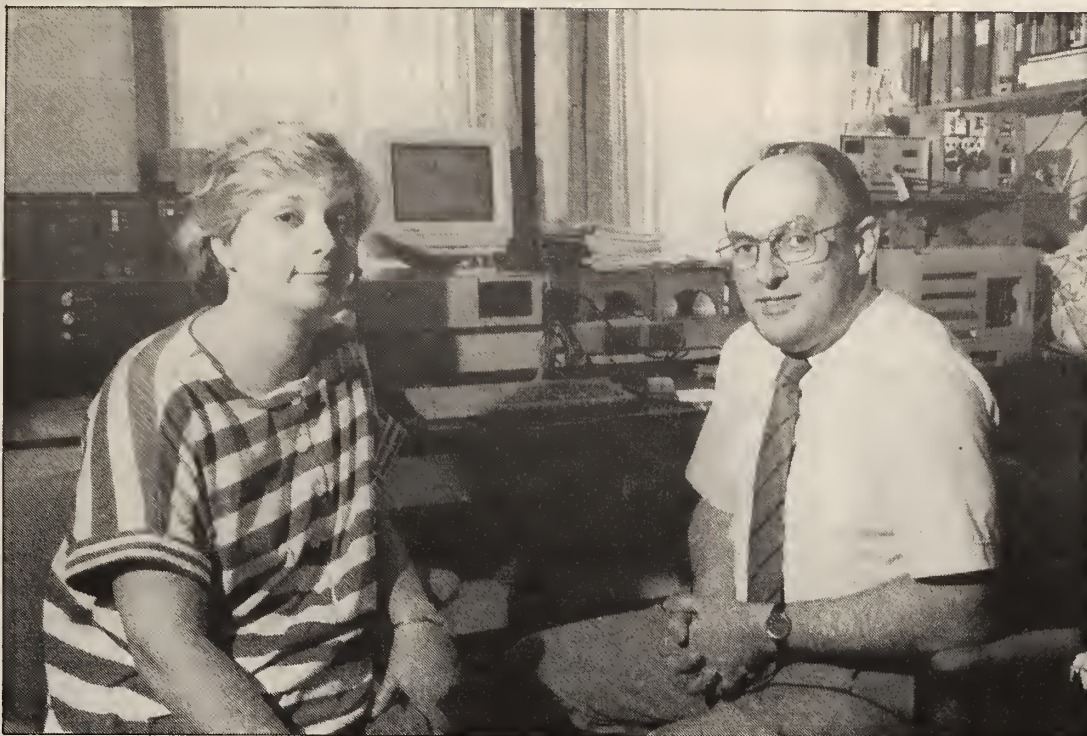
He and his senior research assistant Sue Sandrin developed the Blood & Breath Alcohol Concentration (BBAC) program over a nine-month period.

Users input data — gender, age, height and weight, the number and type of alcoholic drinks consumed and whether food was eaten — and the program then assesses the level of alcohol per 100 millilitres of blood. For instance, a 25-year-old man, 180 centimetres tall, weighing 70 kilograms with an average metabolic rate would have a maximum alcohol level of 110 milligrams of alcohol per 100 millilitres of blood if he consumed eight whiskies on an empty stomach over three and a half hours.

The program was designed for lawyers and scientists, Giles said. It can help both prosecuting and defence attorneys better understand the facts of civil and criminal cases that involve alcohol consumption as well as scientists who require research subjects with specific blood-alcohol concentrations.

Lawyers might use BBAC to obtain a clearer picture of what really happened in a drunk-driving case. For example, by entering data according to a client's recollection — how many drinks were consumed over what period of time — an attorney could determine the blood-alcohol concentration and compare this with the breathalyzer results taken by police after the accident. If there were a large discrepancy in the two numbers, this could indicate the client's recollection was not accurate or that he or she was lying — if the latter was the case, the person might be persuaded to tell the truth, Giles said.

In another scenario, a defence lawyer could use the program to suggest that



Sue Sandrin and Professor Gwynne Giles

the client's blood-alcohol concentration was below the legal limit for driving when police initially stopped the car but rose above the allowable limit at the time of the breathalyzer test. If this were the situation, the client would be found not guilty. (The legal driving limit is 80 milligrams of alcohol per 100 millilitres of blood, but a person can be impaired at a lower level.)

The BBAC program could be helpful for a lawyer defending a person in a murder case. If the attorney could show the accused had a high blood-alcohol concentration at the time of the murder, there could be grounds for arguing the person was unable to formulate the intent necessary for a murder conviction. Similarly, a lawyer could contest the legitimacy of a will signed by a person who had been drinking by suggesting the individual had been too drunk at the time to properly execute the deed.

In most cases, the program would be used in law courts in conjunction with pharmacists or pharmacologists who would be able to testify to the validity of its results, Giles said.

Scientists who are conducting studies on animals or humans in which the subjects must have a specific blood-alcohol concentration could also use the program to determine dosing schedules. For example, a researcher could enter the desired concentration and the program would provide information on timing and number of alcoholic

drinks to attain the goal.

## Accident risk

Giles and Sandrin have also developed a program that estimates the relative risk of a person being involved in a traffic accident in average driving conditions. Data such as age, height and weight are combined with factors such as marital status, education and current driving experience. In developing the data base, the researchers incorporated results from the Grand Rapids, Michigan, traffic study — a major accident study done in the 1960s.

Using the program, known as RISK, Giles compared two 180-centimetre, 70-kilogram men who consumed five drinks over three hours — one aged 16, the other 40. The 16-year-old, who was single, had partially completed high school and drove 100 kilometres a month, had a traffic accident risk six times that of the 40-year-old, who was married, had an

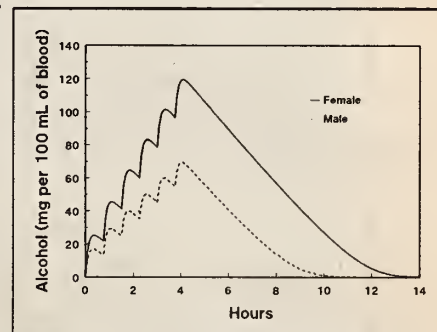
undergraduate university degree and drove 10,000 kilometres a month.

This program is aimed more at the educational market than the law courts, he said. RISK could be used in high schools for guidance courses and in driving programs. "This is different than seeing a poster in front of you telling you what the dangers of drinking and driving are. You can play with this, manipulate the numbers and see the dangers yourself."

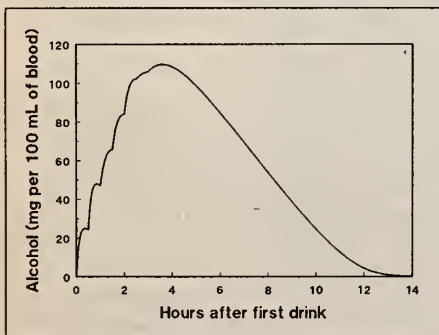
The chances of being involved in an accident increase for teenagers, those who are unmarried, those with less education and those with little driving experience. Teenagers are more likely to be a greater risk because they are still learning to drive even after passing a driving test, he said.

However, it is the alcohol that makes the largest difference to the risk factor. "When you put booze in the picture, the [com-

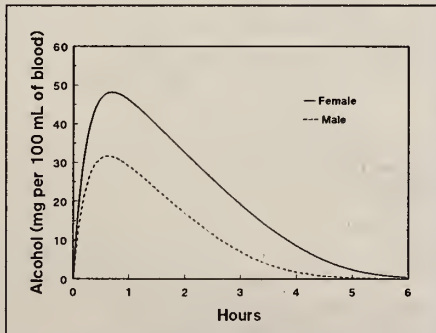
puter] chart goes crazy," Giles said. "Teenagers and alcohol are a disastrous combination — those in their teens have not developed much tolerance in dealing with the effects of alcohol. If they drive after drinking, errors are inevitable and an accident is far more likely."



Blood-alcohol concentrations of a typical male and female where both have six drinks 45 minutes apart.



Blood-alcohol concentration of a woman who has two drinks half an hour apart. With dinner she has three glasses of wine 30 minutes apart. After, she has a liqueur, then, 30 minutes later, an Irish coffee. As the graph shows, she is at risk if driving after the third drink and remains at risk for about eight hours after her first drink.



The difference between two typical 35-year-olds — a woman, 121 pounds, five feet five inches tall, and a man, 154 pounds, five feet 11 inches tall. Both have the same medium metabolic rates, the same medium absorption rates and had one drink each.

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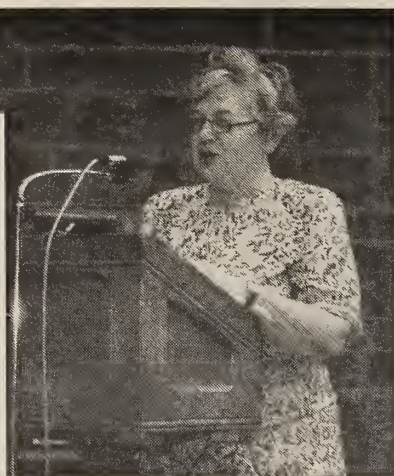
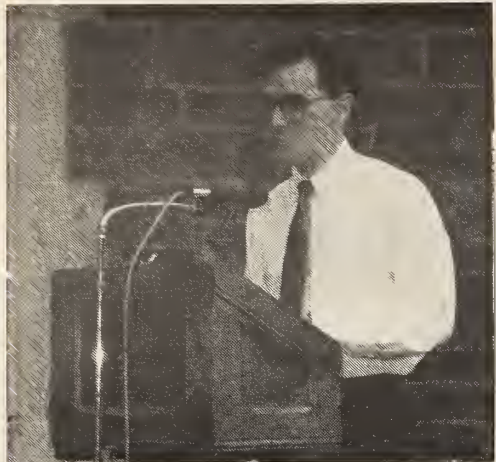
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# Tributes and



**Tributes at Hart House:**  
Professor Ann Saddlemyer,  
master of Massey College,  
SAC president Tim Costigan

(centre) and Governing Council member Barry McCartan, part-time undergraduate student. Acting registrar Karel Swift and Professor Stefan Dupré also spoke.



Right, Provost Joan Foley and Alex Waugh, vice-principal and registrar of Woodsworth College, deliver gifts to George and Sheila Connell (below) while well-wishers look on from the Hart House patio.



MEMBERS of the University community — paid tribute to retiring president George Connell at Hart House and at a black-tie dinner at the Metropolitan Toronto Convention Centre.

Speakers at both events celebrated Connell's excellence, education and administration with his life and work.

In a colourful reminiscence for dinner at the convention centre, Professor Ann Saddlemyer, master of Massey College, recalled life in Prince Albert, where Connell grew up. Dr. John Evans, a former professor and amusingly of Connell's academic and administrative Justice Frank Iacobucci of the Federal Court, provost and dean of the Faculty of Law, spoke in-cheek as a tennis partner, fellow vice-president and

trator. At both Hart House and the convention centre, heartfelt farewells were punctuated by statements of praise. Connell was praised for his efforts on behalf of Western Ontario (where he was president of the higher education in general).

Evans cited Connell's "unequalled intelligence and unflappable serenity." Iacobucci said he admired Connell's judgement, integrity and dedication on the University of Toronto.

Speaking on behalf of faculty members, Professor Stefan Dupré said Connell's team brought order and good government. Acting registrar Karel Swift said Connell go back to her days as an undergraduate and wonderful teacher, "he taught her to be a man of great integrity, has been a tireless administrator, president of the Students' Administration on behalf of students.

Connell responded to the tributes with remarks that revealed his originality. He described the condition of the world to him in his sleep — first as a vision, then as true.

At the conclusion of his speech, he thanked them for his contributions with a sense of humour.

At Hart House, the president thanked the community for its support and said the University of Toronto is a "wonderful learning experience. People here are dedicated."

Connell paid special tribute to the University for its "derful support" and an important part of his own right as "one of the most important people."

## Endowment

Dinner guests paid \$150 a plate for the tribute, with proceeds going to the George Connell Endowment for the George Connell Bursary. The endowment will be \$80 gold, silver and blue and white and \$500 respectively to the endowment. The tribute was more than \$150,000. The tribute was presented by Joan Randall, a former chair of the endowment.

The banquet hall was festively decorated with a large U of T crest on the table. A trio of students from the University of Toronto performed in the foyer before the dinner and the dinner was held in the banquet hall by trumpeters James and his band alumni from the 1950s.

Dinner consisted of iced salmon, salad of oakleaf and endive with radicchio, with sauce homardine and a medley of small vegetables. There were two wines with dinner and fresh fruit — was served in the foyer.

The Hart House reception included a variety of gifts. At the reception, Ann Saddlemyer presented George Connell with trail bicycles decorated with white balloons. They were delivered to the patio outside the Hart House by Alex Waugh, vice-principal of Woodsworth College (and a member of the reception committee for the reception). Students were given shirts, socks and shorts for both Connell and his wife.

Sheila Connell said they have wanted the cottage is the right place to keep them. The gift was philosophical in his appreciation of the wonderful symbol of approaching emancipation, think of freedom and the open road. I.



# Fond farewells



— and many people outside it  
George Connell at a June 18 recep-  
tinner June 19 for 600 guests at  
Centre.

Connell's contributions to sci-  
with humorous retrospectives of

er guests in Constitution Hall at  
Saddlemyer, master of Massey  
Saskatchewan, where she and  
former U of T president, spoke  
administrative careers. And Chief  
l Court of Canada, a former  
spoke of the president tongue-  
e-president and chief adminis-

ion centre, the generally light-  
statements more serious in tone.  
ehalf of U of T, the University  
ident from 1977 to 1984) and

ntelligence, unquestionable integrity  
d he will be remembered for "courage,  
surpassed in the history of the Univer-

bers to well over 100 at Hart House,  
erm has been characterized by peace,  
istrar Karel Swift said her memories of  
ergraduate when, as a "patient, witty  
biochemistry.

on Governing Council, said Connell, a  
s advocate for the University. Tim Cos-  
istrative Council, added his thanks on

e convention centre tributes with re-  
nal imagination and sense of humour.  
of the University as it might have come  
s wry nightmare, then as dream come

speech, the delighted guests thanked  
with a standing ovation.

ident thanked the University commu-  
that "to be president is to be part of a  
l institution, the best of causes and an  
e here draw the best out of the presi-

te to Sheila, his wife, who was a "won-  
ortant person to the University in her  
ost visible volunteers on campus."

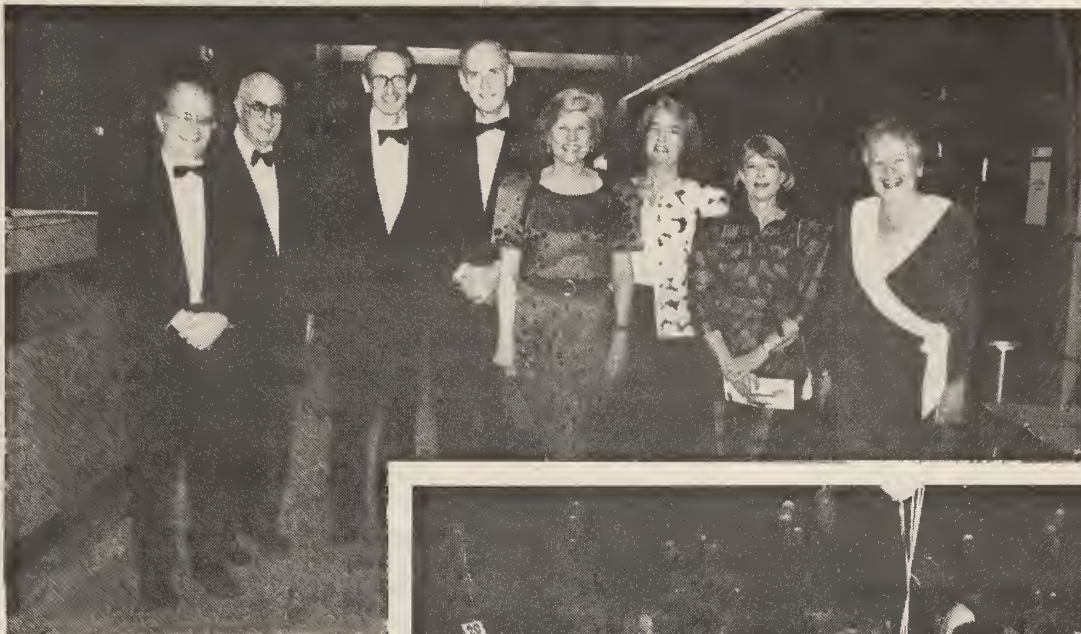
a plate to attend the convention centre  
g to the establishment of an endow-  
l Biochemistry Lectureship. More than  
white patrons donated \$2,000, \$1,000  
e endowment. The evening raised more  
was organized by a committee headed  
hair of Governing Council.

stooned with blue and white balloons  
as mounted behind the elevated head  
om the Faculty of Music played in the  
l Connell was conducted into the ban-  
es Guthro and Ted Richardson, Varsity  
Os.

broccoli soup with roasted pinenuts, a  
io, fillet of Atlantic salmon *en feuilletée*  
now peas, bell peppers and wild mush-  
ner. Dessert — cakes, pies, various con-  
n the foyer.

champagne and strawberries in various  
emyer presented George and Sheila  
with two blue and white balloons. They  
e Great Hall by Provost Joan Foley and  
orth College (who chaired the organiz-  
dents added the necessary apparel: T-  
shells and spandex bicycle shorts for the

ed bicycles for years and has decided the  
George Connell, equally pleased with  
ciation, said: "I cannot think of a more  
ncipation. When I think of bicycling, I  
can hardly wait."



PHOTOS: GREG HOLMAN



The head table (top) at the June 19 tribute dinner. From the left: Chief Justice Frank Iacobucci of the Federal Court of Canada; Chancellor John Aird; Dr. John Evans; George Connell; Joan Randall, a former chair of Governing Council; Sheila Connell; Provost Joan Foley; and Ann Saddlemyer, master of Massey College. Guests prepare for a toast.



Distinguished guests: Provost Joan Foley delivers a toast to the University of Toronto while Joan Randall and George Connell look on. University Professor John Polanyi in conversation with Randall. Chancellor John Aird and former chancellor Pauline McGibbon, past lieutenant-governors of Ontario.





# Observation & discovery

## Molecule binds nerve fibres to their insulation

by Shereen Elfeki

ALTHOUGH we are beginning to think of the brain as the body's own computer, we still use the language of old-fashioned circuitry to describe the nervous system: "blowing a fuse, recharging one's batteries, overloading the circuits." Indeed, the electrical grid provides a good analogy. Nerves carrying discrete electrochemical impulses criss-cross the body, connecting each part to the others and to the central nervous system.

Just as an electrical cable is a collection of wires, a nerve is a bundle of fibres, or axons. Most axons are covered by a fatty substance called myelin which, like the casing of a wire, insulates them. In multiple sclerosis and other neurodegenerative disorders, the myelin sheath breaks down, exposing the axon, which then becomes a live wire. Just as a wire without insulation is a poor conductor, so an axon without its sheath transmits signals very slowly and inefficiently.

The source and composition of myelin have been known for some time, but only recently have we begun to understand how it interacts with the axon. Much of this information has emerged from the laboratory of Dr. John Roder of the Department of Immunology, director of the division of molecular immunology and neurobiology at Mount Sinai Hospital. With financial support from the Medical Research Council and the Multiple Sclerosis Society, Roder and his associates have isolated a molecule

called myelin associated glycoprotein (MAG) which they believe is used by myelinating cells to find, attach to and initiate myelination of the appropriate axons. MAG is the crucial connection between the wire and the insulating sheath; without it, the two come apart.

Roder's research into MAG began by chance five years ago while studying the brain tissue of multiple sclerosis victims. He and his team found a particular molecule in the myelinated regions of their brains which was not seen in the demyelinated regions. They suspected that this new molecule might play a role in myelination and so set out to eluci-

date its structure and determine its function. They began by cloning the gene encoding this new protein. That is, they identified, isolated and replicated this molecule's DNA, its cellular blueprint. Analysis of the DNA sequence revealed that the new molecule is structurally related to a large class of proteins called the immunoglobulin supergene family. Other members of the biochemical clan include the nerve cell adhesion molecule (NCAM) that acts as neural glue, helping nerve cells stick together. Similar structure often implies a similar function; that MAG closely resembles NCAM and is found in association with myelin suggested that it was involved in myelin adhesion — in gluing the nerve fibres to the insulating material.

The next stage of the project was to demonstrate the role of MAG in myelination. First, the researchers needed a quantity of high quality, uncontaminated MAG, which is difficult to extract from the body. It is just one of thousands of different proteins in the nervous system and even if it is possible to isolate it from the others, the separation procedure can damage the molecule. Instead, the researchers used a technique called mammalian cell transfection to produce the desired protein. With this approach, they took the cloned DNA sequence encoding MAG and inserted it into the chromosome of a cell which does not normally produce the protein, but can be induced — genetically tricked — into generating large quantities of it. In effect, the cell becomes a MAG factory.

Roder had solved the problem of producing large amounts of MAG, but he needed some way to test his hypothesis regarding its role in "gluing" myelin to axons. If MAG is a genuine adhesion molecule, Roder postulated, then it should be possible to add quantities of it to spinal cord neurons in culture and find it attached to the axons.

He and his associates decided to demonstrate MAG adhesion visually by fluorescence microscopy. In this technique, a dye is added to the cells under investigation. When the dye-cell mixture is exposed to ultraviolet light, the dye glows, revealing the location of the cells.

Roder put purified MAG and a fluorescent dye into liposomes — hollow balls of phospholipid, a type of fat found extensively in the body — to make biological profiteroles. The liposomes, when added to neurons, acted as containers for MAG and the dye, carrying them to the axons. When he viewed the mixture under the microscope, Roder found glowing axons, like strings of Christmas lights. The liposomes containing MAG had attached to the nerve fibres.

In order to prove that the liposomes and axons were stuck together by MAG

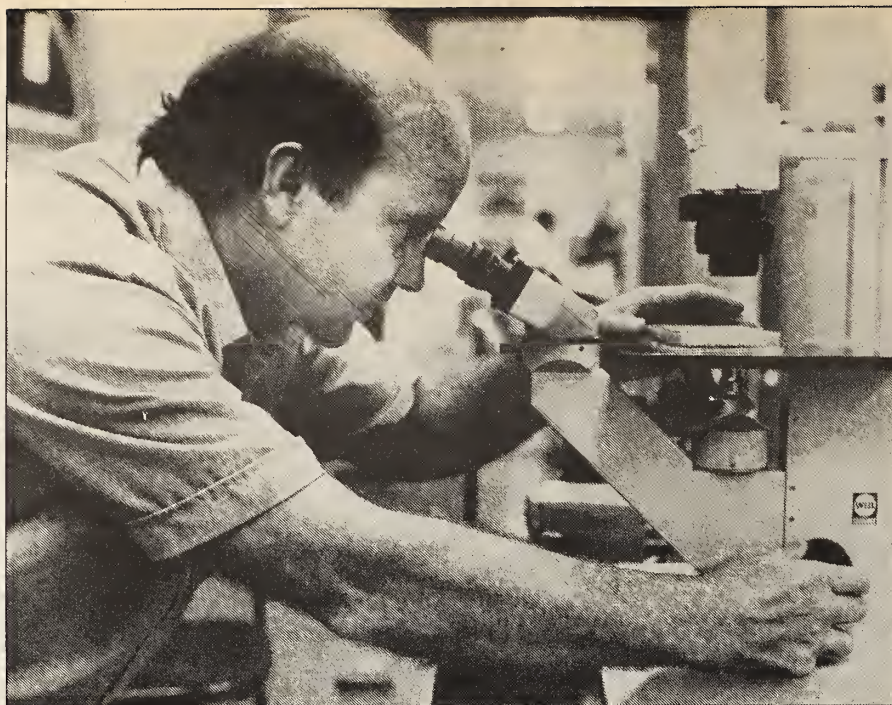
and not by some other molecule, Roder then incubated the liposomes with an anti-MAG antibody before adding them to the spinal cord neurons. This antibody binds specifically to MAG and blocks its interactions with axons. No string of lights this time: the liposomes had failed to bind to the neurons, proving that the contact was indeed mediated by MAG. These results and a number of other tests confirmed the original hypothesis: MAG is a myelin adhesion molecule.

Axons do not produce their own myelin insulation. It is synthesized by two specialized cells, one an oligodendrocyte, which myelinates axons in the central nervous system (the brain and spinal cord), the other a Schwann cell, which does the same for peripheral nerves.

MAG is located on the surface of myelinating oligodendrocytes and Schwann cells. Roder and others now believe that MAG locks into specific receptors on the axon, forming

a bridge connecting the axons and the myelinating cells. These cells are then triggered to extrude part of their membranes which begin to wrap around the axon. Curiously, this wrapping spirals inward. The cells and nerves are packed too tightly in the tissues to allow the oligodendrocytes and Schwann cells to spin their myelin around the axon, as a spider would weave a cocoon around its prey. Instead, the myelinating cells are stationary and new layers of myelin are pushed beneath old ones. Roder and his colleagues have suggested that subtle biochemical alterations in MAG will allow previous layers of myelin to detach from the axon so that the new layers can slip underneath.

The discovery of MAG is of immediate scientific importance and may one day be of practical benefit. As Roder notes, "The study of MAG and other neural adhesion proteins has relevance as to how the nervous system develops, how different cell types in the nervous system interact ... and [how they] create the neural circuits so crucial for normal function." If we can learn to manipulate the process of myelination, we may be able to repair the neural damage inflicted by multiple sclerosis, cerebral palsy, strokes and spinal cord injuries. An essential link between molecules, MAG may also prove to be a link between biological research and medical application.



At the microscope, Dr. John Roder of the Department of Immunology and Mount Sinai Hospital makes an observation. His associates on the MAG project were Monique Arquint, Robert Dunn, Paul Johnson, Ron McGarry, Melitta Schachner and Michael Tropak. In March, Roder was awarded the 1990 Bernhard Cnader Lectureship in Immunology. His research concerns the molecular basis of cell-cell interactions in the nervous system and the way tumours arise, grow and are controlled by the body's immune system.

PETER LEGRIS

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## Books

The following are books by U of T staff. Where there is multiple authorship or editorship, staff are indicated by an asterisk.

June

**When Television was Young: Primetime Canada, 1952-1967**, by Paul Rutherford (University of Toronto Press; 638 pages; \$65 cloth, \$24.95 paper). In this study of what is often called the "golden age" of television, the author has set out to dispel some cherished myths and to resurrect the memory of a noble experiment in the making of Canadian culture.

**Irish Emigration and Canadian Settlement: Patterns, Links, and Letters**, by Cecil J. Houston\* and William J. Smyth (University of Toronto Press; 370 pages; \$45). Irish emigration to Canada took place principally between 1815 and 1855. This book evaluates both emigration and settlement and presents as well revealing personal documents about intense, often painful experiences of the settlers.

**Writings on India: The Collected Works of John Stuart Mill**, edited by John M. Robson\*, Martin Moir and Zawahir Moir (Volume XXX, University of Toronto Press; 336 pages; \$90). Mill worked for 35 years in the Examiner's Office of the East India Company. He was reluctant to comment publicly on the company's affairs but occasionally put forward views in essays and before parliamentary committees. This volume offers an opportunity for a full assessment of Mill's contribution. It includes the first reprinting of the essays, parliamentary evidence and pamphlets and contains in an appendix an annotated record and location of his despatches.

May

**Health and Society in Revolutionary Russia**, edited by Susan Gross Solomon\* and John F. Hutchinson (Indiana University Press; 272 pages; \$27.50 US). The 10 essays in this book focus on the social and political aspects of public health and medical reform in late Imperial and early Soviet Russia. Among topics covered are social influences on psychiatric theory and practice in late Imperial Russia, the regulation of urban prostitution by the tsarist regime, tsarist and early Soviet efforts at providing health care to peasants deeply suspicious of modern medicine, Soviet experiments in eugenics and the administration of health insurance and industrial hygiene.

Catching up

**Governments and Corporations in a Shrinking World: Trade & Innovation Policy in the United States, Europe & Japan**, by Sylvia Ostry (Council on Foreign Relations Press; 123 pages; \$14.95 US). Arguing that the international economic environment of the coming decade will be shaped by the interaction of governments and corporations in Japan, Europe and the US, the book examines the interrelations between corporate behaviour and government policy evolution.

**Conversion and Continuity: Indigenous Christian Communities in Islamic Lands, Eighth to Eighteenth Centuries**, edited by Michael Gervers\* and Ramzi Jibran Bikhazi (Papers in Mediaeval Studies 9, Pontifical Institute of Mediaeval Studies; 559 pages; \$49.50). The Christians living under Muslim domination either emigrated, converted to Islam or remained in the religion with other members of the community. Twenty-three of the papers in this volume consider the historical circumstances that led to these alternatives; two look at the contrasting situation of Muslims in Spain after the *Reconquista*, while one analyzes the interaction of Christians, Muslims and Hindus in Kerala in southern India.

**Being and Knowing: Studies in Thomas Aquinas and Later Mediaeval Philosophers**, by Armand Maurer

(Papers in Mediaeval Studies 10, Pontifical Institute of Mediaeval Studies; 496 pages; \$65). The studies in this volume concern philosophical ideas of men who lived in western Europe and England between roughly 1250 and 1350 — a period that began with Thomas Aquinas and ended with William of Ockham.

**Aging and the Aged in Medieval Europe**, edited by Michael M. Sheehan (Papers in Mediaeval Studies 11, Pontifical Institute of Mediaeval Studies; 228 pages; \$26). Selected papers from the annual conference of the Centre for Medieval Studies, University of Toronto, held Feb. 25 to 26 and Nov. 11 to 12, 1983.

**Norman Bethune Memorial Poems**, by Sylvia DuVernet (Sylvia DuVernet; 45 pages). Published in celebration of the 100th anniversary of Norman Bethune's birth.



Conversion and Continuity

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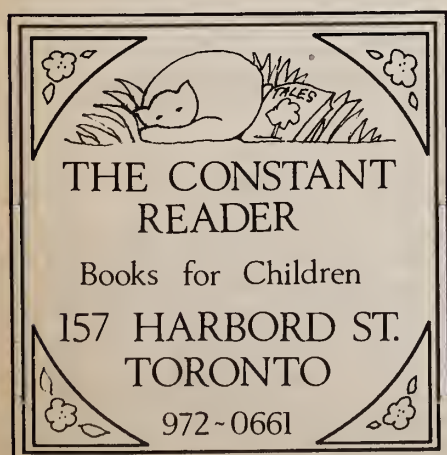
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# Merit awards: theory and practice

TO THE EDITOR:

I write concerning the following, from the lead article of your last issue ("Staff pay up 4.5% plus," June 11): "... this year, an exceptional employee in the first quartile can receive a merit increase of up to seven percent."

I understand that in some divisions of the University, there are for exceptional secretarial staff enough funds for more than the generally allowed "average of three percent" merit increase. But in most academic subdivisions there are not.

In my 18 years' experience, this institution has applied the guidelines of the University's budget instructions in assigning merit increases to its secretaries and has indicated in budget negotiations the six to seven percent increases many have earned. In no case has that increase been awarded because (we are told) "there are no funds for it in your budget" or in the dean's budget or in that of the personnel department. The shocking underfunding of academic and academic-support budgets has meant rigid application of the "average of three percent" merit increase, no matter what a secretary has merited. When we have had three ex-

ceptional secretaries at one time, which has often been the case, all of them got "average" merit increases anywhere from \$800 to \$1,520 per year less than they have earned according to the University's own guidelines. Extrapolating to include larger groups with ours, I estimate that a valued secretary or assistant can in 20 years be paid from \$20,000 to \$25,000 per year less than the Manual of Staff Policies would say that she or he has earned.

May I gently suggest that if the University administration wants to say in its "Salary Determination" guidelines that an exceptional employee can receive a merit increase of up to seven percent,

then a central fund should be set up to cover such increases when divisional budgets cannot. The administration's rejection of all but one of the staff association's salary proposals, combined with the 4.5 percent "economic increase," further combined with misleading assurances of merit awards, is an unwise addition to the discouragement, anger and cynicism now eroding a largely loyal non-academic staff.

Constance R.M. Gardner  
Institute for the History & Philosophy of  
Science & Technology  
Member, Governing Council

## No scientific preference

TO THE EDITOR:

I see it is very easy to get labelled an "antediluvian" moralist at this university. This is particularly amusing when one considers what the morals were like before the Flood.

Professor David Rayside has just about everything wrong ("Anti-gay moralism in the guise of science," June 11). I make

no claim to be heterosexual or to indicate that there is scientific preference for heterosexuality. I merely quoted Masters and Johnson in saying that there is no such thing. Professor Rayside implies that he is in a lifelong intimate bond, a relationship that my letter specifically praises. So why is he so defensive? I am not the least bit interested in telling anyone about my sexual preferences. The fact that I wear a wedding band is not to advertise my sexual prowess but to tell people that I am not available for sexual activity, something my female friends recognize better than my male friends. I find sexual advances by both offensive.

I agree that society is pushing sex at our youth. Society needs to encourage parenting for the survival of the species, but promoting promiscuity is stupid. It is only a matter of time before the course of the HIV epidemic makes the parasitic exploitation of sexual urges the anathema it always should have been. I have no apologies to make to those who cannot comprehend the intense feeling of "we-two-form-a-universe" that makes any public display or discussion of intimate activity revolting.

P.M. Webster  
Division of Respiratory Diseases  
Sunnybrook Health Science Centre

## Beyond confession

TO THE EDITOR:

Not wanting to offend or harass women is one of the most inventive and circular arguments for not calling women "women" that I've heard in a long time.

I do respect Professor Thomas Wolever's acknowledgement that this is his personal struggle with gender-neutral language and not one that he would ascribe to others ("Definition of terms," May 28). However, the exercise of language is a political activity and does affect others, particularly those being named by the language. While the first step — being honest with oneself about one's feelings about language and sexism — is important, the struggle should not end with personal (or public) confessions. The next step is for Professor Wolever to listen to others and begin to analyze his concepts of womanhood. As an elementary guide to learning about language and sexism, I suggest *Words and Women* by Casey Miller and Kate Swift (Anchor Press, 1976).

Professor Wolever says he is "uncomfortable using the word [woman] because it is degrading to women," as it has connotations of "prostitution ('woman of the street') or a female with prominent secondary sexual characteristics." While I would object to the notion that the term "woman" carries either of these connotations (where *did* he get them

from?), the important point is that Professor Wolever thinks that women's bodies and sexuality are "degrading to women." I contend that sexism is a *political* issue which originates in a patriarchal social system oppressive to women, not from within women's bodies themselves. I would also like to point out that the feminist movement proudly involves *all* women, including prostitutes, and that separating the "ladies" from the "women" is an old patriarchal ploy used to divide women from one another. Distinguishing "respectable" women from those deemed "unrespectable" is, in itself, offensive to women.

Professor Wolever also appears to be confused about the University's sexual harassment policy and manages to appropriate it for sexist purposes rather than those for which it is intended. The policy was formed with the intent of heeding the experiences of the complainant and educating the offender, who may be unaware of the consequences and meanings of his actions.

Finally, I would suggest that Professor Wolever listen to the women around him; they are trying to tell him something. This is truly the most respectful way of treating your peers.

Jacky Coates  
Women's Studies Programme

## No student representation

TO THE EDITOR:

In "Sid Smith air tests set" (*Bulletin*, June 11), you report that the Joint Health & Safety Committee for Sidney Smith Hall "...is supposed to include faculty, staff and students. However, recently it has had no student representatives because members were not replaced when they left the University. [David Gorman, director of the Office of Environmental Health & Safety,] said he will ensure that students are on the committee."

There are no student representatives on the Joint Health & Safety Committee for Sidney Smith Hall and there have *never* been. This fact was confirmed by the members of the committee on June 11. The question of whether the lack of student representation is due to a vacancy or to the fact that students have never been represented was asked of committee members at a meeting of representatives of the Association of Part-time Undergraduate Students, the Arts & Sci-

ence Students' Union, the Students' Administrative Council, the U of T Staff Association, the U of T Faculty Association, the Physical Plant Department and the Office of Environmental Health & Safety. The answer was unequivocal and unchallenged by anyone present: there has never been student representation on the committee.

An earlier article ("Asbestos cleanup plan considered," May 28) mentions that work on removing asbestos from the lobby ceiling in Sidney Smith began in April, but neglected to mention that signs were not posted in a clear and visible manner to warn people — both occupants of the building and people walking in off the street, for example — of the asbestos dust hazard. This is contrary to provincial labour regulations.

Jovita Nagy, president  
Association of Part-time Undergraduate  
Students

## Psychological understanding

TO THE EDITOR:

In a recent letter David Askew, president of the U of T Staff Association, recommends that a search committee be struck immediately to find a successor to the outgoing sexual harassment officer ("Without delay," June 11). Indeed, the position for sexual harassment officer was advertized May 31. The posting provides a salary range, but fails to give any professional requirements other than a university degree.

I am concerned about the composition of the search committee. It provides the final definition of the officer's qualifications and appears to be free to choose an amateur. For example, a sexual harassment officer may be appointed because she has been extremely active in the women's movement. On the other hand, the University's Policy and Procedures: Sexual Harassment implies a lack of bias and a psychological understanding of all parties. I recommend that either the search committee be structured to understand and include the qualifications that would satisfy the policy or that the policy be changed to make the sexual harassment officer an adviser and advocate for the complainant, in which case another mechanism should be provided to monitor and control progress to a formal hearing, including mediation, in order to exclude frivolous or vexatious cases.

In view of the policy's heavy emphasis on formal cases, especially hearings, the policy has been seriously under-

funded. The facilities of the office made it very difficult for me to try to review the testimony during my hearing and it was impossible for my lawyer (in part because of the lack of full-time clerical support mentioned by Mr. Askew). A transcript should be produced of each session for review before the next session. Legal costs of thousands of dollars are now provided for the complainant, but not for the respondent. I hope that Mr. Askew's organization, the U of T Staff Association, provides more support for its members than the faculty association does. The real problem, however, is the student. Two-thirds of the respondents in the first year were undergraduate males. Must they go without legal counsel if they cannot afford to pay?

Richard Hummel  
Department of Chemical Engineering &  
Applied Chemistry

## Clarifying the definition

TO THE EDITOR:

Contrary to the University of Toronto Staff Association's recent letter ("The certification process," May 28), the union's application for certification defined the proposed bargaining unit to include all employees except faculty and librarians, research associates, professional engineers and persons covered by collective agreements. By way of clarification, the application stated that the definition was intended to include that group of employees traditionally represented by UTSA.

UTSA traditionally represented all administrative staff, including managers, and UTSA membership was and is, I believe, open to all staff, including the vice-presidents. Therefore, the bargaining unit proposed by the Canadian Union of Public Employees in the application for certification would have included in it all managers and employees employed in a confidential capacity.

It was incorrect for UTSA to claim that the definition of the bargaining unit proposed by the union, as set out in the application for certification, allowed for the exclusion of 400 staff members whose responsibilities might be of a managerial or confidential nature with respect to labour relations. In fact, the definition allowed for no exclusion of managers or confidential employees who, by law, are not to be included in the bargaining unit.

Contrary to the assertions in the letter, the 400 were excluded several months after the filing of the application for certification (and after the reply of the University was filed) when it became apparent to CUPE that its position regarding the appropriate bargaining unit was completely untenable.

Alexander Pathy  
Vice-president (human resources)

## Letters deadlines

July 13 for July 23  
August 10 for August 20

Letters should be submitted on a computer disk (5.25 inches) in WordPerfect or plain text format, or on paper, typed and double spaced. Please include a telephone number and, if possible, a fax number. Disks will be returned if an address is provided.





## Events

### Meetings & Conferences

#### The Nervous System and Fuel Homeostasis.

Thursday, June 28 and

Friday, June 29

First Toronto-Stockholm symposium on perspectives in diabetes research. Sessions in the auditorium, Medical Sciences Building.

Thursday, June 28

1. Methods to Study Fuel Homeostasis in the Brain. Nonoxidative Glucose Consumption and Normal Brain Function: Positron Emission Tomography Studies in Normal Humans. 9 a.m. Nuclear Magnetic Resonance. 9:40 a.m. Immunochemistry and Molecular Biology. 10:40 a.m. New Probes to Study Regulation of Autonomic Nervous and Neuroendocrine Function. 11:20 a.m.

2. Brain Fuel Metabolism, Regulation of Food Intake. Glucose Metabolism and Autoradiography. 2 p.m. Blood-Brain Barrier Transport of Glucose, Ketone Bodies and Free Fatty Acids. 2:35 p.m. Metabolism and Transport of Amino Acids. 3:45 p.m. Energy and Macronutrient Intake Regulation. 4:20 p.m.

Friday, June 29

3. Peptide Signals in the Nervous System and Fuel Homeostasis. Peptides Within the Neuroendocrine System. 8:30 a.m. Hypothalamic-Pituitary-Adipose Axis and Adipose

Tissue Growth. 9:05 a.m. Sympathetic Control of Islet Function by Catecholamines and Galanin. 9:40 a.m. Peptidergic Regulation of Islet Hormones. 10:50 a.m. Stress and Carbohydrate and Fat Metabolism. 11:25 a.m.

4. Neural Responses to Abnormalities in Fuel Homeostasis. Search for the Hypoglycemia Receptor Using the Local Irrigation Approach. 2 p.m. Regulation of Gluconeogenesis during Hypoglycemia. 2:35 p.m. Abnormalities in Brain Metabolism in Diabetes Measured by Balance Techniques and PET. 3:45 p.m. Eating Disorders as Assessed by PET. 4:30 p.m. Abnormal Glucose Metabolism in Brain Degenerative Disorders as Measured by PET. 5 p.m. Registration fee: \$300, students, residents or fellows (supervisor's letter required) \$100.

Information: 978-4656. (Banting & Best Diabetes Centre and Karolinska Institute, Stockholm)

### Exhibitions

#### ROBERTS LIBRARY

##### Polish-Jewish History and Culture.

To June 30

Photographs, books and artifacts from the collection of the University of Toronto Library; co-sponsored by the Polish-Jewish Heritage Foundation and U of T Library. Main Display Area. Hours: Monday to Friday, 8:30 a.m. to 12 midnight; Saturday, 9 a.m. to 10 p.m.; Sunday, 1 to 10 p.m. (Public & Community Relations)

#### JUSTINA M. BARNICKE GALLERY, HART HOUSE

##### Urban Images: Canadian Painting.

To July 19

Organized and circulated by the Agnes Etherington Art Centre, Kingston. Both Galleries. Gallery hours: Monday, Tuesday and Friday, 12 noon to 5:30 p.m.; Wednesday and



"The Dream of Mayor Crombie in Glen Stewart Ravine" by William Kurelek is part of the exhibit Urban Images: Canadian Painting, currently at the Justina M. Barnicke Gallery. See Exhibitions.

Thursday, 12 noon to 7:30 p.m.; Saturday, 1 to 4 p.m.

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#### THOMAS FISHER RARE BOOK LIBRARY

##### Exploration of the Orient.

July 16 to August 31 In conjunction with the International Congress of Asian & North African Studies. 2nd floor. Hours: Monday to Friday, 9 a.m. to 4:30 p.m.

#### Carillon Recitals.

Sunday, July 1

Sandra Young Tangjerd, London, Ontario.

Sunday, July 8

Lloyd Abernethy, Toronto.

Sunday, July 15

Gordon Slater, Dominion Carillonneur of Canada.

Sunday, July 22

Larry Weinstein, Dayton, Ohio. Soldiers' Tower. 7:30 p.m.

#### Erindale's Summer Art Camp for Kids.

July 3 to August 31

Features a different theme each week for children between the ages of 3 and 13. Activities include cartooning, drawing, painting, sculpture sessions, art outdoors, crafts, printmaking and kite making. One-week session \$55, weeks of July 3 and Aug. 7 \$45. Applications deadline is June 29. Information: 828-5214.

### Events deadlines

Please note that information for Events listings must be received in writing at the *Bulletin* offices, 45 Willcocks St., by the following times:

Issue of July 23, for events taking place July 23 to Aug. 20: Monday, July 9

Issue of August 20, for events taking place Aug. 20 to Sept. 10: Tuesday, August 7

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### Miscellany

#### Campus Walking Tours.

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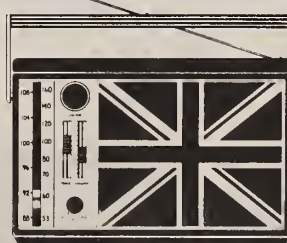
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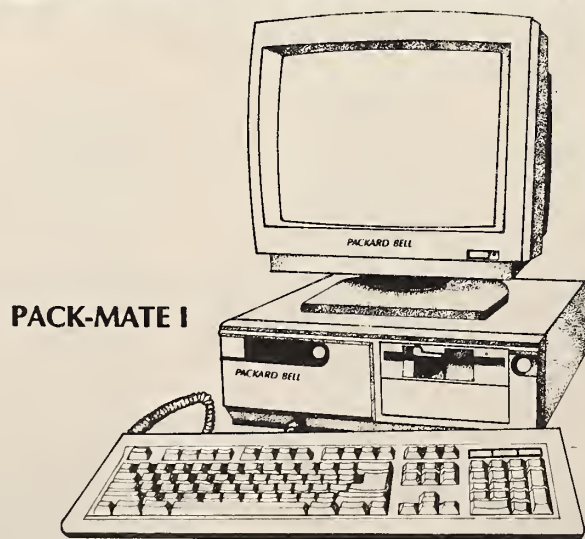
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## Research Notices

For further information and application forms for the following agencies, please contact ORA at 978-2163.

### The Benians Fellowship

The fellowship, offered annually, is open to scholars on sabbatical leave from a tenured post to undertake study and research as a member of St. John's College, Cambridge, England. Details on eligibility and application format are available from ORA. Deadline is September 1.

### Health Innovation Fund

The Premier's Council on Health Strategy has announced the revision of their Guidelines for Applicants and application forms to incorporate changes to competition programs. Effective immediately competitions will be held on Oct. 1 of each year only.

New application material is expected from the council in July.

### National Cancer Institute of Canada

Effective July 1 new stipend

rates paid from research grants will be:  
full-time students — \$15,000 per annum;  
post-doctoral fellows — \$25,400 per annum increasing in increments of \$2,500 to a maximum of \$37,900.

The value of independent personnel awards will be:  
studentships — \$16,000 per annum;  
post-doctoral fellowships — \$26,400 per annum increasing in increments of \$2,500 to a maximum of \$41,400.

### Upcoming Deadline Dates

Alzheimer's Disease & Associated Disorders Association Inc. (US) — pilot research grants: July 13.

Benians Fellowship (St. John's College, Cambridge) — sabbatical leave only: September 1.

Canada Council — Killam research fellowships: June 30.

Canadian Diabetes Association — research grants: July 30.

Canadian Nurses Foundation — small research grants: July 31.

Deafness Research Founda-

tion (US) — new research grants: July 15.

Health & Welfare Canada (NHRDP) — post-doctoral fellowships; national health research scholarships, national health scientists, visiting scientists: July 31.

International Union Against Cancer — Yamagiwa-Yoshida memorial international cancer study grants (sabbatical funding): June 30.

NSERC — E.W.R. Steacie memorial fellowships: July 1.

Ontario Ministry of Health — career scientists (previously notified applicants only) — renewals: August 1; progress reports: August 31.

Smokeless Tobacco Research Council — research grants: June 30.

SSHRC, Research Communications Division — aid to scholarly conferences in Canada (Oct.-Feb.): June 30; aid to international congresses in Canada: June 30; travel grants for international representation: June 30.

U of T, Humanities & Social Sciences Committee of the Research Board — grants-in-aid: August 1.

## PhD Orals

Graduate faculty please call the PhD oral examination office at 978-5258 for information regarding time and location for these listings.

### Friday, June 29

James Martin Girsch, Centre for Medieval Studies, "An Edition with Commentary of John Mirk's *Manuale Sacerdotis*." Prof. A.G. Rigg.

Elizabeth Alexandra Innes, Department of Chemistry, "A Theoretical Study of Bonding and Topomerization of Hypervalent Sulfur Compounds." Prof. I.G. Csizmadia.

### Friday, July 6

Marion Nathalie Cooke, Department of English, "The Fictive Confessions of Audrey Thomas and Mary Di Michele." Prof. R.M. Brown.

Carol Judith Elaine Schwartz, Department of Medical Biophysics, "The Role of DNA Bending in FLP-Mediated Site-Specific Recombination." Prof. P.D. Sadowski.

### Monday, July 9

Salim Faris Farah, Department of Chemistry, "Aspects of the Reduction of 1-Methyl-2-nitroimidazole with

Glutathione and the Reaction of 1-Methyl-2-nitroimidazole with Glutathione." Prof. R.A. McClelland.

Chi Mou Augustine Wong, Department of Statistics, "Converting Observed Likelihood Functions to Tail Probabilities for Exponential Linear Models." Prof. D.A.S. Fraser.

### Friday, July 13

Nancy Jean Speirs, Department of English, "Hermeneutic Sensibility and the Old English Exodus." Prof. R.A. Frank.

### Monday, July 16

Ajay Heble, Department of English, "The Tumble of Reason": Paradigmatic Reservoirs of Meaning in the Fiction of Alice Munro." Prof. R.M. Brown.

### Wednesday, July 18

Larry Edward McKeown, Department of Geography, "Urban Public Transit Subsidies: Theory and Policy Analysis with an Assessment of Commuter Rail in the Greater Toronto Area." Prof. J.R. Miron.

### Thursday, July 19

Michael Bietenholz, Department of Astronomy, "A Radio

Study of the Crab Nebula." Prof. P.P. Kronberg.

Douglas Geoffrey Johnson, Department of Botany, "Effects of Low Growth Temperature on Metabolism of Polar Glycerolipids in *Brassica Napus* Leaves." Prof. J.A. Hellebust.

### Tuesday, July 24

Richard Noel Vineyard, Department of Zoology, "Systematics of the Caddisfly Genus *Neophylax* McLachlan (Trichoptera: Uenoidae)." Prof. G.B. Wiggins.

### Wednesday, July 25

James Ryall Ellis, Department of Medical Biophysics, "Gene Targeting and Retroviral Recombination with Mammalian Genomes: Pathways Deduced from Progeny Structures of Selected Recombination Events." Prof. A. Bernstein.

Martin Sandig, Department of Anatomy, "The Organization and Development of the Zonulae Adhaerentes and the Associated Circumferential Microfilament Bundles in Retinal Pigment Epithelial Cells." Prof. V.I. Kalnins.

## Classified

continued from page 15

### Miscellaneous

**Victoria B.C. Real Estate.** Experienced, knowledgeable realtor with university faculty references. Will answer all queries and send information about retirement or investment properties in Victoria. No cost or obligation. Call (604) 595-3200 or write Lois Dutton, RE/MAX Ports West, 3200 Shelbourne Street, Victoria, B.C. V8P 5G8.

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**Montrose Infant Care Inc.** 301 Montrose Avenue, Toronto. Attention! We have space available for infants ages birth to two and half years. We are located in Montrose Public School on Montrose Avenue (between Harbord & College). Please call us if you are interested or drop by and visit! Kate White, Supervisor 532-6675.

**Need help with your computer?** Don't worry, there is a solution to all your problems. I am available for assistance at your office in regard to commonly used application programs, hard disk and file management, data security and recovery, computer tutoring, etc. Call Antoine Le Huenen at 422-1047.

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**REPROMED, LTD.** is seeking healthy males including minority ethnic groups to participate in an ongoing study on evaluation of factors influencing sperm cryopreservation and therapeutic donor insemination. Those interested please call 537-6895.





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Ads must be submitted in writing, 10 days before *Bulletin* publication date, to Nancy Bush, Department of Communications, 45 Willcocks St., Toronto, Ontario M5S 1C7. Ads will not be accepted over the phone.

## Accommodation Rentals Available — Metro & Area

**Sabbatical rental:** September 1990 to spring/summer 1991. 3-storey detached renovated house, 2-car parking, 5-minute walk from Danforth subway, near markets and restaurants of 'Little India', Broadview Chinatown and the Danforth. 2 bedrooms and 2 studies/offices, private yard, 3rd-floor deck. Fully furnished, inclusion of reference library/music collection/computer etc. negotiable. \$1,600/month. Call 466-7233.

**Cabbagetown:** fully furnished house facing park, 2 bedrooms, 2 studies, central air, deck, fireplace, grand piano, parking. 10 minutes to U of T. Available immediately, short- or long-term lease. \$1,800 +. Cotter, 486-5200 or 925-5270 or (705) 924-2492.

**Furnished executive house.** September to June or August 1991. Kipling/Eglinton area, 3-bedroom bungalow, air, fireplaces, whirlpool, appliances, 2 baths, piano, garden, 2-car garage, easy access to subway, shopping, schools. \$1,600 plus utilities. Please phone after five: 233-8518.

**Available September 1990 to summer 1991** (month negotiable). Cozy house, fully furnished, 3 bedrooms, finished basement room, 1½ bathrooms, private backyard, parking. Residential area, schools, shopping, convenient to U of T. \$1,300/month + utilities. Anne 654-7735.

**Pape/O'Connor:** one- and two-bedroom apartments in fully renovated triplex (new bathrooms, appliances, wall-to-wall carpeting, etc.). Bright. Garden. Quiet neighbourhood, minutes from parks, all amenities. Parking available. Downtown 10 minutes. Priced from \$787. 656-2828.

**Beaches.** Sabbatical August 1/90 — July 31/91. Lovely 3-bedroom detached home, fireplace, woodwork, sun-deck, gardens, garage, minutes to schools, parks, lakefront, 15 minutes to downtown and campus. No pets. \$1,400 + utilities (\$70). 690-2709 after 6:00.

**Sabbatical rental.** 3+ bedroom nicely furnished detached 2-storey house, Bathurst/Wilson. September 1 (or October 1), 1990 to July 1, 1991. Garage, family room, two washrooms, laundry room, close to schools. \$1,800/month includes utilities. 597-3029 from 9:00 to 4:00.

**High Park.** House for rent, 3 bedrooms, laundry, patio, garden, 2-minute walk to subway or park, quiet residential street. \$1,250 + utilities. September 1. Call 537-7418.

**Fabulous 4-bedroom home,** 2 fireplaces, garden, parking, 10 minutes from campus, furnished/unfurnished. Available August 1. 537-3222.

**Two-bedroom house,** beautifully furnished, in heart of Cabbagetown, close to TTC, shops, schools, gym. Available Septem-

ber 1, 1990 for two years @ \$1,450 + utilities a month. K. Brown, 5 Lancaster Ave., Toronto M4X 1B9. Call 924-6899.

**Yonge/St. Clair.** Cul-de-sac, walk to subway, detached 4-bedroom, fireplace, deck, large garden, parking, kids/pets allowed. References. Available August 1. \$1,800 +. 485-1947 evenings.

**Annex, walking distance U of T.** Owner's 2-bedroom furnished duplex, fireplace, deck, 5 appliances. Available July 15 for one or two years. References. Price negotiable. 535-6731. Mrs. Resnick, leave message.

**House for the academic year.** Bathurst/Wilson, detached house, large yard, 2 bedrooms, 1½ baths, living, dining, central air & heat, cable TV, frost-free fridge, new dishwasher. Quiet neighbourhood. Sept. to May. \$1,100 a month, non-smoker. 636-6230.

**July/August.** Large, attractive, fully furnished apartment. Short walk to subway and shopping. Bathurst and St. Clair. Separate dining-room, study, sun-room, utilities and parking. \$1,450/month. 964-0396.

**Central, cosy, steps from Yorkville,** U of T and downtown. Fully furnished 1-bedroom apartment, living-room, study, utilities and parking. Ideal for two professionals. July 20 to end of September. \$1,450/month. 964-0396.

**Sabbatical rental.** 2 storeys, 3 bedrooms & family room, 2 bathrooms. Fully furnished and equipped in lovely old neighbourhood. Short walk to subway, schools and shopping. Bathurst/Eglinton area. \$2,000 + utilities. September 1990 till end of June 1991. Home 783-1240, business 534-3348.

**Large, fully furnished one-bedroom apartment.** Ideal for a visiting faculty couple. Available July 1st for summer or for year. Located in One Park Lane luxury complex at Dundas and University (by subway). Short walk to U of T and teaching hospitals. Living-room, kitchen, dining-room, large bedroom, sun-room, and two bathrooms (1050 sq. ft.) for \$1,600/month. Underground parking and recreational facilities. Contact Prof. K.C. Sevcik at 978-6219 or 593-5401.

**2-bedroom apartment,** completely furnished. Non-smoker, someone very meticulous, visiting professor, faculty member, nurses in training. \$950 monthly inclusive (except telephone), has to be seen to be appreciated. Bathurst & Steeles area, near subway, bus, convenient shopping. September 1990 — April 1991. 663-7957.

**Sabbatical rental:** Bloor/Cawthra. Detached three-bedroom house, air-conditioned, all appliances, front garage with double drive, swimming pool with private backyard, walking distance to shopping, schools and transit. \$1,000 unfurnished, \$1,400 furnished. Call 678-2704.

**Queen/Dufferin.** 1-bedroom coach house, furnished or unfurnished, with deck, air conditioning, washer/dryer. \$1,090 includes utilities. 530-4269.

**Bloor/Bathurst,** 3-bedroom, furnished, renovated house; fireplace, deck, air, laundry. \$1,800 plus utilities. Available September 1990 for 1 or 2 years. Call 532-2465 or 326-5488, ask for Betty.

**Luxury condo sleeps three.** 5-minute walk to U of T & to all major centres of Toronto. Pool, squash, gym, sauna, patio, cable TV. Available July 23 — August 31. Price negotiable. References. 596-1178.

**Bloor — 5 subway stops west of University.** 1-bedroom apartments in a fine old house, just renovated and handsomely furnished. Some with fireplaces. Parking. Short-/long-term rental. \$275/week. 921-7482 evenings or weekends.

**Summer rental: August & September.** Furnished one-bedroom apartment. High Park location, right on subway. Ideal for one person or couple. \$591/month + hydro. No pets. Call Jason 761-1957.

**Annex. Bloor/Spadina.** Spacious 1st floor in Victorian house. Elegantly renovated, 1 bedroom, eat-in kitchen, fireplace, appliances, deck, private garden, unfurnished or furnished. Five-minute walk to subway, bus, U of T. July 1. \$1,350 + utilities. 921-3332.

**Bloor/High Park,** elegantly furnished 2-storey 1- to 2-bedroom house, newly renovated kitchen/bath, 1½ blocks to subway, ample parking. Available September 1 (10 to 12 months). \$1,500/month, non-smoker, 598-3928, 763-3609.

**Bathurst/Eglinton.** Large 4-bedroom, 3-bath, Tudor family home, tree-lined street, lower Forest Hill. Air-conditioned, deck, finished basement, garage. \$2,500/month plus utilities. 1- or 2-year lease. August 1. 485-7714 evenings.

**Davisville/Mt. Pleasant.** Newly renovated bachelor basement apartment available immediately. Broadloom, cable, \$600 inclusive. Non-smoker, no pets. References required. Call 440-0471. Message returned same day.

**Cat-lovers only.** Furnished 2-storey, 2-bedroom apartment in house with roof-top access, fireplace, sun-room and 3 cats to sublet. August 1 — September 30, 1990. \$800/month includes utilities, parking, cat food. Damage deposit required. Quiet, responsible. 535-1107.

**September 1, 1990 — June 30, 1991.** Second and third floor of house. Sun-deck off third floor. Dundas/Brock. \$900/month + utilities. 531-7068 after 6 p.m.

**Unique 3-level apartment.** 2-3 bedrooms plus office. Close to High Park. Great location! Laundry, parking, newly renovated. \$1,350/month + utilities. Call Loraine 961-1698.

**Bloor/Spadina, Brunswick Ave.** 2nd floor, 1 bedroom, skylight, small deck, washer, dryer, newly painted, new bathroom. \$900 per month. Phone Diana 922-3906; after July 3, 928-1479.

**Bloor/Spadina, Brunswick Ave.** Short- or long-term, fully furnished, 2 bedrooms, den, separate dining-room, eat-in kitchen, patio, deck, garden, parking. \$1,500. Diana 922-3906; after July 3, 928-1479.

**Bayview/Moore,** furnished house, close to TTC, shopping, schools. 5 appliances, 3 bedrooms, office, family room, parking. September 1990 — June 1991. \$1,650/month. 978-4445 (days); 423-0827 (evenings).

**Large one-bedroom apartment** for rent. On Bloor/Danforth subway line. Unfurnished, fireplace, parking. Available July or August 1. Prefer minimum 1-year stay. Rent \$750. First & last. Call 463-2390.

**Condominium rental:** Bathurst & Finch (Antibes). 3 bedrooms, 2 baths, parking, near TTC. In a parkland conservation area. Near recreation centre. \$1,275/month (includes utilities). 979-5033, during day. 881-8911, after 6 p.m.

**Playter Blvd.** Charming house, beautifully furnished and equipped. 3 bedrooms, study, 2½ baths, breakfast room, finished basement, piano, garage. French immersion school. Central, quiet neighbourhood, Chester subway. August for 13 months. \$1,800/month, negotiable. 463-6440.

**Dufferin/Eglinton,** gorgeous, newly renovated, 1-bedroom basement apartment, large living-room, bathroom, eat-in kitchen, new carpet, private entrance, subway, backyard, cable, fairly new fridge/stove. \$695/month inclusive. John or Sharon at 256-3565.

**Sabbatical rental.** Brunswick/Harbord area. Bright family home, pleasant neighbourhood, short walk to hospitals and University. Furnished (negotiable), 4-5 bedrooms, study, 2 bathrooms, 6 appliances, central air, deck, parking. August 15, 1990 — August 1991. \$1,700. No pets please. 588-0496.

**Queen West area,** also near U of T. Two levels of quiet renovated Victorian house. Sublet Sept. 1/90 — Mar. 31 or Apr. 30/91. Elegantly furnished, living, dining, kitchen, bath, washer/dryer, bedroom, patio-garden. Ideal for single academic. References required. \$750/month inclusive. Oliver 366-2533.

**Yonge/Eglinton.** 28 Sherwood Avenue. Two 2-bedroom apartments on main floor & basement of duplex. Parking. August 1. From \$850. Also available 103 Heath St. W., 3-bedroom apartment, \$1,950. Call 733-7835.

**Roomy Victorian house,** short walk to campus and subway. 5 bedrooms, 1½ baths, eat-in kitchen, 5 appliances, central air, wonderful private garden. Great for a family — even space for a nanny! Non-smokers preferred. August 1, 1990 for up to three years. \$1,800 plus utilities. 534-0948.

**Bloor West Village.** Spacious, detached 3-bedroom house for rent, two bathrooms, finished basement, air-conditioned, garage, garden, wonderful neighbourhood. 10 minutes to down-

town by car, close to TTC. \$1,500 plus utilities. Available July 1. Phone 767-6884.

**Annex/Madison Avenue.** Large, bright 2-bedroom in Victorian triplex, hardwood floors, lots of character, laundry, yard, parking, \$1,195, August 15. Big 2-bedroom basement apartment, bright, high ceilings, laundry, yard, \$985 +, ASAP. 323-3470. References.

**Avenue Road/Eglinton.** Ground-floor duplex, spacious, 3 bedrooms, separate living-room, panelled dining-room with chandeliers, sun-room, fireplace, entrance hall, many closets. Quiet well-maintained building. Laundry, yard, parking. \$1,595, July 1, ASAP, references. 323-3470.

**Mt. Pleasant/Eglinton.** Detached house, 3+ bedrooms, 1½ baths, new sky-lit eat-in kitchen, appliances, fireplace, central air, garage. Quiet street, backing on Sherwood Park. Steps to bus, excellent schools, shopping, restaurants, movies. \$1,850 plus utilities. Available July 1. 486-0820 evenings.

**Furnished house to sublet** August 1990 (2-4 weeks, negotiable). 3 bedrooms, sun-room, finished basement. Dufferin/Bloor. 532-8781 evenings.

## Accommodation Rentals Required

**Finnish post-doctoral fellow** and family require a 2- or 3-bedroom apartment or equivalent for coming academic year. None of us smokes. Please contact: Elisabet Service, University of Helsinki, Dept. of Psychology, Ritarikatu 5, SF-00170 Helsinki, Finland. E-mail: SERVICE@FINUH (BITNET). Fax: 358-0-191-3443 or 358-0-529-986.

**Vacation/sabbatical?** Professional couple will house-sit. Plants, pets, exterior/interior care. Experience, excellent references. Commencing August/September. All details negotiable. 778-8505.

**Going away August 1990?** Bet you thought you couldn't rent your house for just one month — but you can. If your house is 3+ bedrooms and you can rent it for the month of August, call Alice at 920-4378 now. What have you got to lose?

## Accommodation Shared

**High Park — large, clean,** furnished room in unique, renovated, private, quiet house, garden. Immediate. Near subway. Ideal for non-smoking U of T employee, professional, graduate student. \$425 monthly, references required. 533-1440 after 7 p.m. or leave message.

**Bloor/Bathurst.** 3-bedroom, furnished, renovated house to share with one; fireplace, deck, air, laundry. \$700 inclusive. Call

532-2465 or 326-5488, ask for Betty.

## Accommodation Exchanges

**UK/Canada house exchange,** 4 weeks, preferably August. 3 bedrooms, garden, car. University family seeking similar in Canada. Write Dr. Mark Grimshaw, 12 Raymond Ave., Canterbury, Kent. Phone U.K. 0227-6628.

## Houses & Properties for Sale

**House, private sale or rent.** Low down payment, mortgage with vendor. Danforth/Coxwell area, TTC downtown. Detached brick bungalow, renovated, 5 rooms, 2 bathrooms, private deck, nice yard, garage. Well-maintained, must be seen. Sale \$189,500. Rent \$1,300/month. 463-3529.

## Vacation/Leisure

**BACKPACK CANADA, UNITED STATES, PERU & NEPAL.** Adventurous backpacking treks through the Ocala National Forest in Florida, in the magnificent Canadian Rockies, the Grand Canyon in Arizona, the Appalachians during the autumn colour season, hut hopping in the White Mountains of New Hampshire, the Andes Mountains of Peru (including Machu Picchu), and Nepal (the Annapurna Sanctuary). We have some trips where we hike out daily from base camps. No experience is necessary. Request brochure. WIL-LARDS ADVENTURE CLUB, Box 10, Barrie, Ontario, Canada L4M 4S9. (705) 737-1881.

**Summer rental in Wellington** (historic Prince Edward County). Bright, spacious, furnished apartment in charming heritage house. View of Lake Ontario, steps from water & village main street. Two bedrooms, eat-in kitchen, skylights. Garden & parking. Weekly or seasonal. Contact: Alexandra Allen, 26 Narrow Street, Wellington K0K 3L0. (613) 399-2921 or 921-5701.

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*continued on page 14*



## SUMMER CARILLON RECITALS

Sundays 7:30 - 8:30 p.m.

July 1	— SANDRA YOUNG TANGJERD London, Ontario
July 8	— LLOYD ABERNETHY Toronto, Ontario
July 15	— GORDON SLATER Dominion Carillonneur of Canada
July 22	— LARRY WEINSTEIN Dayton, Ohio

at SOLDIERS' TOWER,  
Hart House Circle, U of T  
978-2021



# Atmospheric warming can be averted

## Reduce CO<sub>2</sub> emissions

by Gay Abbate

GLOBAL WARMING, known as the greenhouse effect, is not inevitable, says Professor Danny Harvey of the Department of Geography. His research has led him to conclude that the impact of this phenomenon will not be as severe as previous studies suggest if global measures are taken to gradually reduce carbon dioxide emissions within the next 10 to 30 years.

"We don't have to accept global warming in a fatalistic way," he said. "The dire predictions stem from business-as-usual scenarios. We can respond to problems by undertaking what might appear to be a very small rate of reduction in carbon dioxide emissions."

Global warming refers to the heating of the atmosphere which occurs when gases absorb some of the infra-red heat radiation emitted from the earth, preventing its escape into space. Some of the terrifying potential consequences include coastal cities flooded by rising sea levels as glaciers melt, productive farmlands gradually transformed into semi-deserts and deserts as wind and precipitation patterns change, more frequent and serious storms, floods and droughts and greater temperature fluctuations.

Scientific opinion varies on when to expect these changes. Some researchers claim the heat wave of 1988 is a sign global warming has already begun or, at the very least, that it was a precursor of what is to come. In any case, a globally averaged warming of three to five degrees Celsius is expected to occur within the next 50 to 100 years as a result of humans doubling the carbon dioxide concentration in the atmosphere from pre-industrial levels. CO<sub>2</sub> concentrations have already increased by 25 percent in the past century — from 280 to 350 parts per million by volume —



DAVID VERESCHAGIN

while the global mean temperature has risen by about half a degree.

The scenario of global catastrophe assumes that the 5.5 billion tons of carbon dioxide emitted annually into the atmosphere will grow to 15 to 20 billion tons as a consequence of increased energy consumption by the developed world, growth in third world population and increased use of CO<sub>2</sub>-producing fossil fuels — coal, petroleum and natural gas. This would lead to CO<sub>2</sub> concentra-

tions well in excess of even a doubling.

### Optimism

Until recently, scientists accepted the inevitability of this doubling theory and focused their research on the question of when it would occur rather than how it could be averted. Harvey, however, disagrees with many researchers — doubling will not necessarily occur if certain steps are taken. His optimistic outlook is based on his two studies which used a computer model of the climate-carbon cycle.

The first study examined the effect of various levels of carbon dioxide emissions on both atmospheric CO<sub>2</sub> concentrations and global mean temperatures.

He concluded that carbon dioxide levels could be limited — even with a one or two percent per year increase in fossil fuel emissions up to 2020 — if followed by 10 to 15 years of annual one to two percent decreases. Under this scenario, CO<sub>2</sub> levels would not go beyond 500 parts per million — a level significantly less than projected concentrations of 600 to 1,000 parts per million.

"If emissions were to grow in the next decade or two then come back down to the present and then continue to drop — that represents a tremendous improvement compared to the business-as-usual scenario. That would be sufficient to stabilize the concentration of carbon dioxide at well below the doubling level."

According to Harvey's scenario, mean global warming could be limited to as little as 0.6 to 1.2 degrees Celsius above the temperatures of the 1980s. However, these limits would not necessarily be maintained in countries at high or mid-latitudes. Canada, for instance, could experience temperatures two to three times the global warming average, particularly in winter, because of melting ice and snow.

"The models suggest that with strong aggressive action now we can stabilize the atmospheric CO<sub>2</sub> level and the concentration of other greenhouse gases at

a level which should avoid most of the damage we fear," he said.

The long-term goal must be to reduce emissions to the rate absorbed by oceans and forests, Harvey said.

The way to stabilize and eventually reduce atmospheric concentrations is to decrease the airborne fraction — the difference between the amount of carbon dioxide emitted and that absorbed. Some previous studies by other climatologists assumed twice as much CO<sub>2</sub> is emitted as is absorbed so that the airborne fraction always stays at a constant 0.5 — the current rate.

Harvey argues this is not the case. Over the next 20 to 30 years, the airborne fraction would fall to almost zero if emissions were cut by half. This would occur because oceans would initially continue to absorb at about their current rate.

Eventually, however, the airborne fraction and CO<sub>2</sub> concentration would begin to increase again — oceans would gradually absorb less because absorption depends on cumulative carbon dioxide concentration. By equalizing emissions and absorption, there would be no further increase in atmospheric carbon dioxide.

His second study used varying population figures to measure CO<sub>2</sub> emissions. He concluded that to achieve a one percent per year CO<sub>2</sub> decrease between 2020 and 2050 the per capita energy consumption in industrialized countries has to be cut by one-third. Along with this reduction, the use of non-fossil fuel energy — hydro, solar, wind, geothermal, tidal and biomass — must be increased at a rate equivalent to 150 new nuclear power plants per year for the next century. Also, world population — currently just over five billion — must be limited to 10 billion, he said.

These are attainable although not easy goals, Harvey said. "It's easier to continue along with business as usual. However, the bottom line is this scenario will lead to disaster."

## ENERGY conservation tips

THE UNIVERSITY has embarked on a program to reduce its energy consumption and become more energy efficient, says Phil Garment, manager of the building, fabric and grounds division of physical plant.

High-efficiency fluorescent lighting has replaced incandescent lights, a special low-emissivity film has been installed on windows in six air-conditioned buildings to reduce energy loss and new buildings — such as the Earth Sciences Centre — have been designed to be intensively energy efficient, Garment said.

The University has also undertaken an aggressive energy management program known as the central control and monitoring system to reduce fuel consumption in winter. This program controls the heat in about half of the buildings on the downtown campus. Since 1972-73, fuel consumption has been cut almost in half while the University's space during the same period increased by about three million square feet, Garment said.

Professor Danny Harvey of the Department of Geography says the public and private sectors could be doing more to decrease or at least slow down the greenhouse effect.

The University could reduce by 30 percent heat loss through windows in winter by installing low-emissivity panes in all its buildings. It could also upgrade its heating and cooling systems and install occupancy sensors in classrooms — these automatically turn lights off after everyone has left. Students could assist by switching lights off when they leave classrooms, he said.

Governments could offer private industry financial incentives to produce energy efficient products. The energy these products would save would reduce the need for more expensive power plants.

Homeowners and tenants could do their part by turning lights off in unoccupied rooms, replacing 75-watt incandescent light bulbs with 17-watt compact fluorescent lights, replacing inefficient oil furnaces with high-efficiency gas ones and purchasing the most energy efficient appliances available on the market thereby cutting appliance energy use in half.

Cars are a major source of carbon dioxide emissions and should be used only as a last resort, said Harvey, who bikes to work. He is co-chair of the City of Toronto Special Advisory Committee on the Environment which last year persuaded city council to adopt as its goal a 20 percent reduction in carbon dioxide emissions by 2005.